FLIGHT and The AIRCRAFT ENGINEER

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The Outlook

Helping Russia

SOME observers, the Turks among them, have been inclined to say that Britain is unable to help Russia any more than she was able to help Poland, and to draw the conclusion that the British are not the most effective allies. It is true enough that, owing to the collapse of France, we British cannot now co-operate on land with Russia in the same way as was possible in the early years of the last war. Obviously the time has not come when we can land an army on the Continent and force the Germans to withdraw large numbers of divisions from the Eastern front to oppose it. But, none the less, the help which our air activities are giving to the Russians is real. Our daylight sweeps over the occupied tracts of France at first met with only feeble opposition, from which it was concluded that the bulk of the best German fighter squadrons had been moved to the East. More recently the German reaction to our offensive (it is surely incorrect to call it an "invasion," as some official communiqués have done) have met with more determined resistance, with a larger proportion of the latest German fighter types rising to oppose the escorts which we send with our bombers. The German pilots, too, have lately shown more skill and enterprise than they did at first—a clear indication that there has been reinforcement of the West from the East.

Fighter aircraft now play a most important part in land operations, for it is upon them that the success or failure of bombing attacks on the opposing troops depends. It is all-important that the Russians should be able to hold their own in the air, and that the German Stukas should not have things all their own way. The Russian fighter pilots are showing a splendid spirit and considerable skill, but they need all the help they can get. It is pretty clear that the British daylight sweeps have caused the withdrawal of a very useful number of the best German fighter pilots from the Eastern front, and that must have a very beneficial effect on the Russian effort.

Building for Victory

THE very important point of whether Great Britain ought to plan for a victory by air power alone or by using aircraft of various descriptions to give the fullest possible support to the British Army is discussed in an article on another page of this issue. Of course, the country could not wisely concentrate upon one of the objects to the absolute exclusion of the other. However strong the War Cabinet decided to make the air support for the Army, it would still be necessary to maintain a bombing offensive against the enemy's production of warlike material; and likewise, even if it were decided to concentrate on the assault on production, the Army must still have far more efficient air help than it had in the Battle of France, in Norway, in Greece and in Crete. But, even with the help of the United States, Britain could not in a reasonable time attain absolutely overwhelming air superiority in both these directions. She can have either one or the other, but not both.

It is of the utmost importance that this question, a question of major strategy, should be settled at once, and the programme of aircraft production in Great Britain and the United States framed in accordance with the decision taken by the War Cabinet. It is a basic principle, or at least it ought to be accepted as one, that when a major land battle is in progress every bomber

which Britain can raise should be used for defeating the enemy in the field. Factory output can make little or no difference to the result of an individual battle or series of battles. But the heavy bombers which are most effective in destroying factories are not necessarily the best aircraft for use against the enemy's army and lines of communication. If the decisive victory is to be won on land, then the major part of the production effort should now be directed towards laying in ample stocks of all the classes and types which will be of most benefit to the Army. But if bombing is the trump card, the plans for expanding the Army might be modified.

Non-recoil Guns

FREQUENT mention in recent official communiqués and broadcasts of the devastating effects of the shell-guns, miscalled cannons, with which our fighters are now armed, causes one to reflect on the likelihood of even heavier calibres coming into use. The limiting factor seems at present to be the weight of the ammunition which has to be carried. Figures relating to the total of rounds carried by the American Bell Airacobra are given in this issue, quoted from our American contemporary *Aero Digest*. They are somewhat formidable—at 4,560 rounds (30 for the shell gun).

The terrific concentration of fire which such armament gives may be imagined. In addition to concentration, however, range of fire is obviously important, in the air as in any other sphere. A mixed armament comprising 37 mm. shell, .50 calibre and .30 calibre machine guns, should combine concentration and range to a degree.

One may, however, visualise circumstances in which range may be of greater importance than concentration, and in this connection it would be wise not to overlook the possibility that the enemy may have decided, having realised that he was originally outguessed by the British system of multi-gun fighters, to try to follow a different line of development by "going for" range.

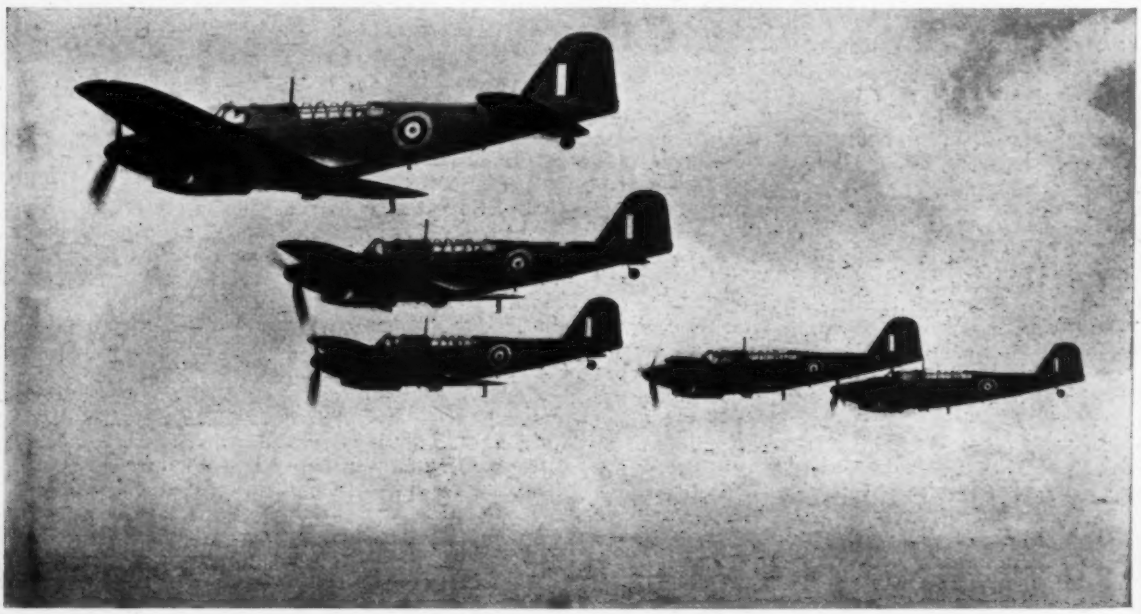
The obvious way would be guns of heavier calibre and longer barrels. But, apart from the question of ammunition weight, there is the trouble of recoil, already sufficient in existing fighters to cause a momentary slowing-down and dropping of the nose. That might be got over by a development of the Davies non-recoil gun of the Great War. In this a wad of the same weight as the projectile was fired in the opposite direction, and it was claimed that a man might hold the gun while it was fired. The loading problem might be overcome by mounting the guns in the angle between fuselage and wing in a twin-engined aeroplane. There they could be brought within reach of the gunner, and one imagines that the pilot would be provided with normal aircraft guns, which he would use, if opportunity afforded, while the gunner was reloading. The muzzles could readily be brought clear of the airscrew discs.

Atlantic Monopoly

THE projected Atlantic service by American Export Airlines is dead. The U.S. Senate has killed it by refusing to grant the funds required for its establishment, even though the company has been granted a "certificate of convenience and necessity" by the Civil Aeronautics Board. Voting in the Senate was 44 to 35 against granting the allotment, which had previously been approved by the Senate Appropriations Committee by 13 to 12.

This decision is very hard to understand, as the application had been examined and approved not only by the C.A.B. but by the Post Office and the Navy and State Departments. It is even more incomprehensible when one thinks of the great volume of traffic which cannot be carried over the Atlantic these days because Pan American must turn it away.

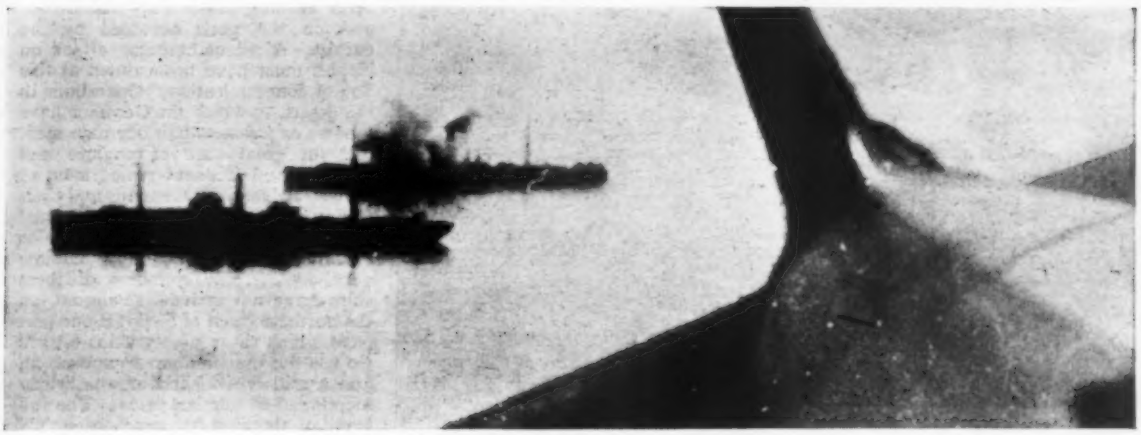
American Export Airlines and the Civil Aeronautics Board both have reason to feel aggrieved, the former because it has spent much effort and money in careful preparations to run its service efficiently, and the latter because the Senate has shown a lack of confidence in its recommendations on one of the matters for whose investigation and arbitration it was formed.



FLEET AIR ARM FIGHTERS: A flight of Merlin-engined Fairey Fulmars on patrol. With two batteries of four machine guns in the leading edge, the Fulmar has the same striking power as the original Hurricane or Spitfire.

War in the Air

Russian Airmen Fighting Well : How the R.A.F. Helps : Bombing Palermo



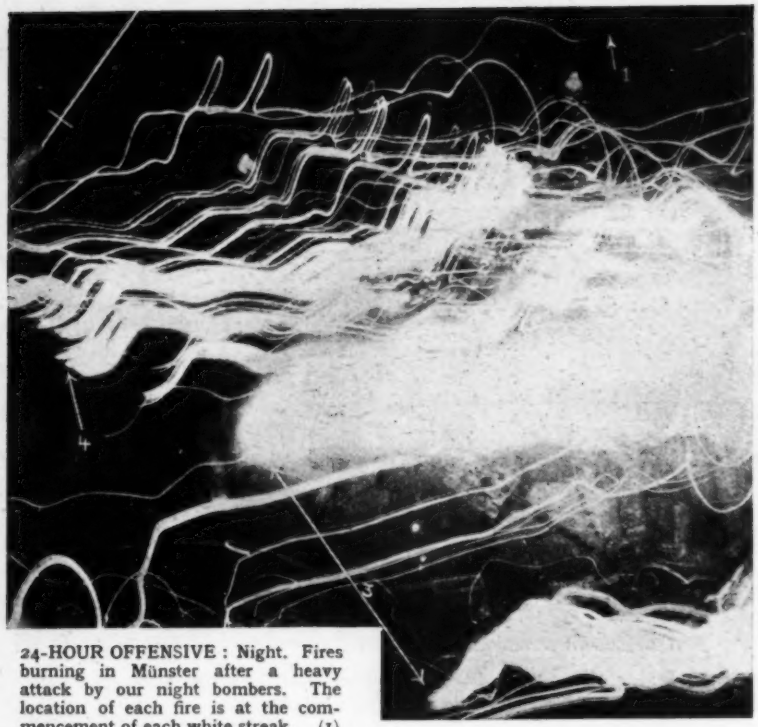
SEA LEVEL ATTACK: A direct hit on an enemy supply ship. The tail of the Blenheim appearing in the photograph shows the low height at which the attack was carried out.

ONE hesitates to write much about the fighting in Russia, because any day may bring news which will contradict a statement after it has gone to press. Not very much is to be learnt from the official reports, for, as one wag has said, two Powers are at war each of which knows how to write a communiqué. But a few facts stand out. By invading without a declaration of war, the Germans evidently hoped to put the Red Air Fleet out of action, as they did the Polish air arm. Probably they did destroy a number of Russian aircraft on the ground by this means, but they failed in the major object. The Red Air Fleet is still in fighting trim. The Russians have not practised strategic bombing, and are not trying to indulge in it to any large extent, though they make occasional raids on certain spots, especially Ploesti in the Rumanian oil fields, and start extensive fires. For the most part their aircraft stick to the battle front, and are well advised to do so. Using shell-guns with armour-piercing rounds, they have put a number of German tanks out of action. Russian towns have not yet suffered the dread fate of so many Polish towns by being bombed out of existence. By day the Russian fighters are active enough to prevent the Germans from indulging in their delightful amusement of slaughtering the unresisting, and by night there must be considerable difficulties in finding the way across rather featureless plains. German navigators like plenty of practice before they are confident of hitting off a particular spot. Only the other day they tried for the rock of Gibraltar but only succeeded in hitting the Spanish town of Linea!

The British mission in Russia has reported that the *moral* of the Russian pilots is very good, and the fighters are always anxious to engage the enemy. The R.A.F. has been able to give valuable support to them by its daylight sweeps over Northern France. At first the Germans had clearly sent most of their best fighters off to the Russian front. Now there is evidence that they have recalled many of them to meet the R.A.F. Spitfires and Hurricanes, and many of those who have come back are experienced pilots flying the latest German types. So long as the Russian fighters can prevent the German Stukas from ruling the battlefields, as they did in France and elsewhere, the brave Russian armies have a good chance of holding back the invaders. The R.A.F. is helping them to achieve this.

The Germans moved numbers of heavy bombers over to the Eastern front as well, but, as the Prime Min-

FROM THE RUSSO-GERMAN FRONT: Aircraft on an occupied Russian aerodrome. On the left is an I.15 standing on its nose ; in the background a Ju 52 and a Fiesler Storch parked side by side and, in the right foreground, is apparently the wreck of an I.17, one of Russia's newer fighters.



24-HOUR OFFENSIVE : Night. Fires burning in Münster after a heavy attack by our night bombers. The location of each fire is at the commencement of each white streak. (1) South-west corner of Münster aerodrome. (2) Bomb flares west of the aerodrome. (3) Large fires north-east of the aerodrome and (4) more fires east of the 'drome.

ister told us the other day, they kept enough in France to have enabled them to have indulged in another "blitz" against Great Britain. Probably it could not have been a "blitz" on the heaviest scale. But they are losing numbers of bombers in Russia, and that will probably affect their power of striking hard at Britain. Their training schools must be fairly hard put to it to keep up the supply of air crews.

Not much has been heard, at least not much which can be accepted as authentic, about the use of Russian parachute troops. Russia was the first Power to experiment with this form of troops. But there has probably been little opportunity in the present campaign for their effective employment. They are of more use in attack than in defence, and they need speedy support by ground formations if they are not to be quickly wiped out. As Russia is fighting on the defensive, that support would seldom be forthcoming, and so it has been wiser to keep the parachutists for a more favourable opportunity.

Isolating Tripolitania

THE signing of the armistice in Syria will have put General Auchinleck in a much stronger position in Egypt than he has been since he took over the command from General Wavell. While the main German forces are engaged against Russia, the contingent in Libya has kept quiet, even as the *Luftwaffe* in Northern Europe has also been fairly dormant. The idea may be that success in Russia will open a new route to Egypt, and, when that is available, then will be the time to use the pincers tactics. The Germans at Benghazi and Tripoli may have had orders to wait till things are ready.

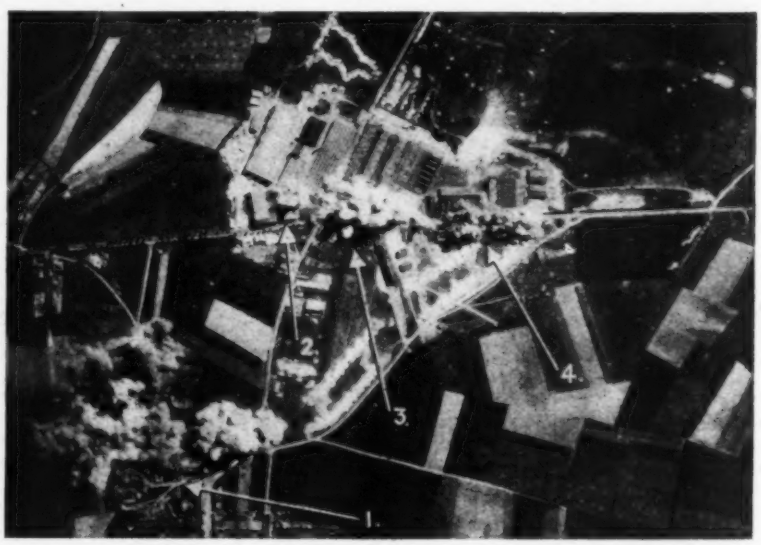
At the same time, it seems highly probable that those same Germans must be troubled by difficulties of

WAR IN THE AIR

supply. Of late almost every day the communiqués from the R.A.F. in the Middle East and the Naval Commander-in-Chief in the Mediterranean have told of successful attacks by our aircraft and our submarines on supply ships heading from Sicily for Libya, and on the ports occupied by the enemy. A recent bombing attack on Naples must have been aimed at this line of communication. Operations in the desert, in which the Germans have far less experience than our own men, call for great care of engines and vehicles, and frequent replacement of parts. To keep the Germans and their Italian satellites fighting in Libya must mean a steady stream of supply ships reaching the Libyan ports. Of late very considerable numbers of these ships have not arrived. Palermo, on the northern coast of Sicily, is one port from which these supply ships set sail (to use the time-honoured expression), and a raid on its harbour was briefly mentioned in our last issue. The full story of the raid has since been told by pilots who took part in it. At least three enemy ships—one of 10,000 tons—were sunk by our bombs and another 10,000-tonner was set on fire.

The Palermo Raid

THE leader of the R.A.F. formation said: "It was a clear sunny afternoon when we left our base to carry out the attack on Italian ships in Palermo. We flew in formation on our way to the target, sometimes coming down to only a few feet over the deep blue Mediterranean water. We made our landfall off Sicily exactly as the doctor ordered and crossed the Sicilian coast with the mountains towering in the



24-HOUR OFFENSIVE : Day. Bombs bursting on the Potez aircraft works at Meaulte, near Albert. (1) Bursts on the north end of Meaulte. (2) Machine gun shops and stores. (3) and (4) Bombs bursting on main assembly hangars and offices.

WAR IN THE AIR

background. The visibility was terrific. That, of course, helped us considerably, but it should also have assisted the enemy to sight us long before we made our attack. However, we seemed to have surprised everybody right through the entire trip. On our approach we could see the Sicilians sun-bathing on the beaches and sailing boats off the coast. As soon as they saw the R.A.F. markings, the majority dived from the boats into the sea, and those swimming submerged until the aircraft had passed over. One or two, unalarmed, waved up to us in a friendly manner. None of the gun positions along the coast was manned, so we were not fired at. By this time we saw the merchant vessels which were the object of our trip.

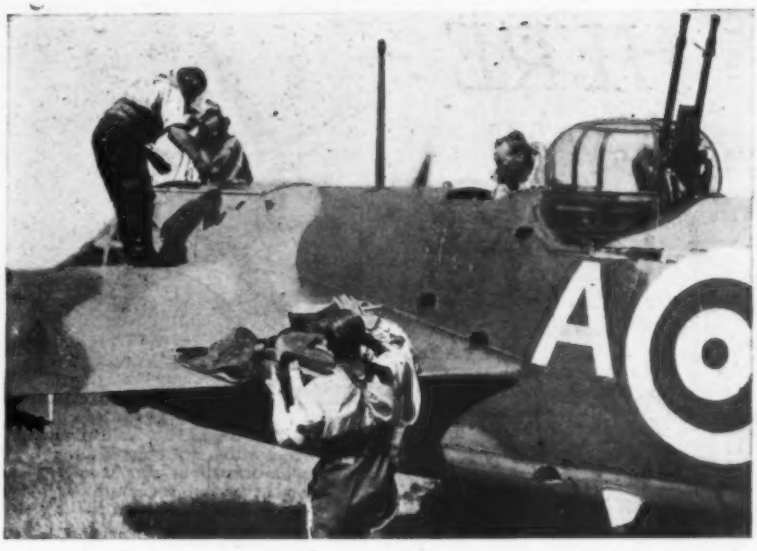
Remnants of the Italian Navy

"WE flew in line along shipping moored to the mole. Just as we were attacking I suddenly saw on my right some remnants of the Italian Navy—a few cruisers and destroyers. It was really astounding that we seemed to have caught them napping, too. There was the usual fluttering gentle Sicilian breeze and sailors were basking in the sunshine on the decks. They soon disappeared as each air gunner of our formation systematically machine-gunned the decks. The occupants vanished below, but not before many had been hit. Our bombs meanwhile had done plenty of damage to the merchant ships. The stern of one vessel of 10,000 tons seemed to stick right up out of the water, and large fires were started on two other ships of about 8,000 tons. There were also direct hits on two more ships, one of 8,000 and another of 2,000 tons. Besides machine-gunning warships, all the gunners poured bursts into military buildings and some warehouses.

"We then turned for home and I thought the time was about ripe for Italian fighters to intercept us during the flight back over the island, as we had well and truly stirred up the hornet's nest. However, we did not see a single enemy fighter and our pilots all put up a magnificent show, keeping tight formation as we flew down valleys in extremely bumpy weather towards the sea. When we left the island we all came down again and for a while flew just above the surface of the sea. We all came back feeling that we had stuck another thorn into the side of the Axis."

Another raid on the warships in Palermo harbour has been carried out since the one described above.

It seems that the Russian air raids on Ploesti have had considerable success. The Unirea refinery has been destroyed. This formerly belonged to the Phœnix Oil Co., a British concern. The Phœnix installations at Constanza were destroyed in a previous raid. The result of the success at Ploesti is said to be that Rumania's oil refining capacity has been reduced by one million tons per annum. The plant was engaged in the refining of lubricants, of which the Germans are in special need.



BACK ON THE HOME GROUND: Blenheim crew deplaning after returning from a daylight sweep.

In the Northern Area

NOT only in the Mediterranean, but also in the Channel and the North Sea has the shipping of the enemy been subject to consistent attacks in recent weeks. The R.A.F. have struck in all directions, wherever it was known that enemy concentrations and convoys were to be found. Attacks on Rotterdam, where no fewer than 17 ships were destroyed in one recent raid, and Dunkerque have been outstanding instances of these tactics.

Since the Russian campaign began the *Luftwaffe* has not been very energetic in its actions against Great Britain, but one night there was a vicious raid on Hull. But, though not many raiders have been over this country by night, the percentage of German losses has been heavy. One night-fighting squadron recently brought its tally of enemy aircraft shot down to over the 50 mark, and received congratulations from its Group Commander, Air Vice-Marshal Sir Quentin Brand:—"Congratulations on passing your half-century. Keep up the good work. I look forward with confidence to the 100 up."

Following the designation by the Air Ministry of a famous R.A.F. squadron as the "Madras (Defiant) Fighter Squadron," the Commanding Officer has sent the following message to the Governor of Madras: "On behalf of the squadron under my command I would like to tell the people of the Presidency of Madras, through you, how much we enjoy flying the Defiant aircraft subscribed for by the people of Madras. This Madras fighter squadron already holds the daytime record of 37 enemy aircraft destroyed in one day, and the boys will not be happy until we also hold the record for shooting down most enemy bombers at night. Up to now we have destroyed 14 night raiders."

In a recent speech Mr. Alexander, First Lord of the Admiralty, told his hearers that aircraft pilots frequently make trips on destroyers, while officers from destroyers have opportunities of flying as passengers in aircraft. In this way they learn each other's difficulties and requirements. Nothing is more certain than that men who have never flown are quite unable to imagine the position of men up in the air, and it is useful to give them air experience in this way.

ENEMY AIR LOSSES TO JULY 19th.

	Over G.B.	Over Continent	Middle East
July 13	2	1	—
,, 14	2	8	1
,, 15	—	1	3
,, 16	1	—	9
,, 17	—	9	—
,, 18	2	1	2
,, 19	—	5	1
	7	25	16

Totals: Northern Area, 5,082; over 1,970. Middle East,

BRITISH AIR LOSSES TO JULY 19th.

	Over G.B. Aircraft	Over G.B. Pilots	Over Continent Aircraft	Middle East Aircraft
July 13	—	—	1	—
,, 14	—	—	11	—
,, 15	—	—	3	—
,, 16	—	—	8	2
,, 17	—	—	7	2
,, 18	—	—	3	—
,, 19	—	—	7	—
	0	0	40	4

Totals: Northern Area 2,296 about 341. Middle East

HERE AND THERE

Assistant Military Attaché in London

LT. COL. G. DE FREEST LARNER will be assistant military attaché at the U.S. Embassy in London. It is expected, says *American Aviation*, that one of his duties will be the gathering of information from American observers.

U.S. Ferry Command

AMERICAN aircraft for delivery to Britain will be flown from the factories to the Atlantic coast by a ferry command to be organised by the U.S. Army Air Corps. It is stated that junior pilots will be used, and that stations for maintenance and change-over of pilots during the delivery flight will be established at intervals along the trans-continental routes.

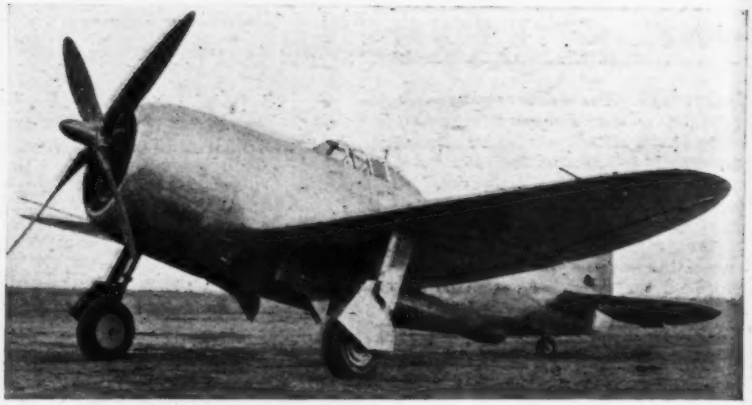
Evidence of Sabotage

CONSOLIDATED'S chief test pilot and three others of the crew of five were killed in the crash of a Liberator into San Diego Bay on June 2nd. The bomber's controls did not function properly after the take-off, and the company has since stated that there was evidence of sabotage.

"Things to Make"

CAN you make a magnetic compass out of a piece of piano wire, a cycle valve cap and some cardboard? Can you coax a stolen bicycle to do typewriting? If you cannot do the latter, it does not matter, as the A.T.C. will not ask you to perform this somewhat difficult feat. But making a magnetic compass which works in just the same way as the one in the cockpit of a Wellington is an exercise which will help you in the Air Training Corps.

The A.T.C. cannot be completely provided with real aircraft equipment, not even obsolete or damaged equipment, as the demand for it is too great. So it must make shift for instructional purposes on what it can make itself. A little book, which costs only 6d. and is called *Things To Make*, has been edited by the Air League of the British Empire and it gives instructions how to make such things as a mock-up, an "air trainer" (which is a cockpit with working controls), a Morse practice set and even a small wind tunnel. Written by A.T.C. cadets, it will be of great value to units which are now getting together their equipment. It may be obtained from booksellers or from the Air League of the British Empire, Kinnaird House, 1a, Pall Mall East, London, S.W.1.



AMERICA'S FIRST 2000 H.P. FIGHTER. The Republic XP-47B Thunderbolt, powered with a Pratt and Whitney engine, first flew on May 8th. No particulars of speed, armament or armour have yet been released but none of them will be slight. The undercarriage is comfortably wide and cuffs on the four-bladed airscrew will be noticed. The pilot's view does not appear to be very good.

He Walked Through a Propeller

IN a Royal Air Force officers' mess recently someone started a competition for describing strange escapes. There were tales of parachute drops and escapes from crashes. But the first prize—a can of beer—went to a Flight Lieutenant who told this story. He vouched for its truth.

"I was on a training station," he said, "making an inspection with another officer of the undercarriage of one of our aircraft. The twin engines of this particular machine were ticking over quite slowly at the time, with the propellers idling round. The other chap stood up suddenly and nipped to the front to view the undercart end on.

"He walked straight through the arc of the revolving propeller blades of the port engine without their touching him. A moment later he wheeled round, realised what he had done, turned green and passed out in a dead faint."

New U.S. Air Corps Chief

MAJ. GEN. G. H. BRETT has been appointed Chief of the U.S. Army Air Corps, for the usual four-year term, in succession to Maj. Gen. H. H. Arnold, who now becomes Deputy Chief of Staff for Air. Gen. Arnold has held both positions up to the present. It will be remembered that he was in London recently on a visit to study matters connected with the war.

More About the Constellation

THE first Lockheed Constellation is scheduled to be delivered next spring to T.W.A. It will be the first of an order for 40, but the Priorities Board has so far authorised the construction of only three. The Constellation was announced on page 416*h* of our issue of June 19th, but more particulars can now be given. Maximum speed is given as 350 m.p.h. and cruising speed on 48 per cent. power as 285 m.p.h., which will allow it to cross the continent from Los Angeles to New York in under 9 hours, so cutting 5 hours off the present time table of T.W.A.'s Stratoliners.

The pressure cabin will be an advance on that of the Stratoliner in that it will provide sea level pressure up to 10,000 ft., and 8,000 or 12,000 ft. conditions when the aeroplane is flying at 25,000 or 30,000 ft. Passengers number 57 with a crew of 7, and the loaded weight is reported as being 74,000 lb. Engines will be four Wright 18-cylinder Cyclones capable of developing about 2,500 h.p. each.

Este aparato inglés fué derribado en un combate aéreo con cazas italianos

THINGS ARE NOT ALWAYS WHAT THEY SEEM. In spite of the inscription on this picture, it does *not* show a British single-seater fighter shot down by the Italians. The exhaust stub "pattern" points unmistakably to a Hispano-Suiza engine, and the general appearance of the aircraft suggests Morane-Saulnier. It seems more likely that the machine belonged to the Free French Air Force, and that it was deliberately damaged before being abandoned; otherwise the undercarriage would hardly have been intact and one airscrew blade straight. The triple tail arrangement is noteworthy.

FREE FRENCH AIR FORCE

How It Was Formed : Its Growth and Some Exploits : Recruits Still Joining

By HENRY BAERLEIN

Not double-crossers, but Westland Lysanders bearing the Cross of Lorraine, the insignia of the Free French Air Force.

DURING those terrible days in France before the signing of the armistice the greater part of the French Air Force made its way to North Africa, while the ground staff and equipment were despatched from Marseilles and other ports to Algiers and Morocco. It was hoped that the French Empire would continue in the war. But when the decision to the contrary became known to the airmen a good many of them managed to get away to Gibraltar, Egypt, Malta or Britain. Some of them came in cargo ships, some in any small vessel that was at hand. Others flew in their aeroplanes despite all orders to the contrary and in spite of the risk of being shot down. That was the sad fate of certain of them, for the Spanish machine-guns at La Linea, near Gibraltar, were very active; but others escaped to Tunis, Syria, Martinique or Indo-China.

A typical case was that of the pilots who brought from Algiers the aeroplane that belonged to the Italian Disarmament Commission; another interesting example is that of Claude, a naval pilot, whose superb conduct at the front had earned him one of the highest decorations. He happened to be at Casablanca, in Morocco, where he had been put in charge of the aircraft belonging to Admiral d'Harcourt, the commanding officer. Immediately after the parade at which he received his decoration, Claude took to the air and made for Gibraltar. He is now in Britain, preparing for fresh engagements.

Of course, what arrived in Britain, pilots and equipment, could not there and then be formed into complete squadrons, for there was an insufficiency of spare parts, and as yet no homogeneous groups could be constituted. Nevertheless, all the aircraft that were serviceable were at once directed either to Aden or to Egypt, where the French pilots joined up with their comrades of the R.A.F. Other French pilots were then trained in British machines, and the first Free French squadron was sent to Africa on August 30th, 1940, with equipment furnished by the Air Ministry. These are the squadrons whose exploits in Abyssinia, the Sudan, Egypt and Greece have been recounted by the B.B.C. Other fighter and bomber squadrons are now being formed in Africa, while young French airmen are being trained in Britain.

When their training has been completed, French air crews which have arrived in England are either formed into French squadrons or temporarily attached to British squadrons, or sent to British schools of specialised training. A certain number have joined the French parachute corps formed in this country.

If Goebbels proclaims that recruits are no longer coming from France to join up it is only another of his lies. As one example out of a number we may mention that of two young men, each aged twenty-one, who landed a short time ago in England from Occupied France in a German military aeroplane. At the time of the armistice these young men were being trained at a pilots' school in North Africa. They refused to be demobilised, because they believed that one day France would again be in the fight, on the side of the Allies. They asked for leave to go to the unoccupied zone with the intention, once in France, by one means or another, of getting into occupied territory to see their families. In this they succeeded and, without

Bristol Blenheims of the Free French Sudan Squadron being attended to by African ground crews

Col. Valin, Chief of Staff of the Free French Air Force, discusses operations with his second-in-command, Lt. Col. Pigeot.

very great difficulty, they reached their homes. The behaviour of the Germans, however, so disgusted the young men that they decided there and then to come to England and join the Free French.

At the end of their leave they went back to unoccupied territory, still without difficulty, and then, thinking over the matter, decided that the quickest and best means of transport would be by German aeroplane. By this time the young men were at Marseilles. They retraced their steps to occupied territory and then began to search for a machine. After many fruitless visits to various aerodromes they resolved to try their luck at ——. A machine was about to take off; the mechanic and pilot were trying to get the engine going. When they caught sight of the two young men they asked them to lend a hand in cranking her. Here, they felt, was their chance. Get the engine going, knock out the Nazis and away! But, hard though they tried, nothing would make the engine start. The Nazis thanked them for their trouble and bade them good-bye.

Fortune Favours the Bold

Walking round the aerodrome they noticed that a certain aircraft was used for daily liaison flights, leaving at 10 a.m. and returning about 5 p.m. Their minds were made up; this was to be *their* machine. They tossed to decide who should take off. Next morning at eight o'clock they began their approach. They reached the hangar without being questioned by the German sentries. Quickly they made themselves familiar with the navigation instruments, started the engine and jumped into the cockpit. Just as they were leaving the hangar a car containing four German officers drove up. The car stopped to allow the machine to pass, and thanking the Germans with a nod they opened the throttle very slowly to warm up the engine, and took off normally. Visibility was bad, so neither anti-aircraft guns nor fighter aircraft were able to intercept them. After an hour and a half in the air they saw the English coast appearing out of the fog. Despite the poor visibility, the fact that they were flying a German machine and that neither had done any flying for the past ten months, they made a good landing and in London they joined the Free French Air Force.

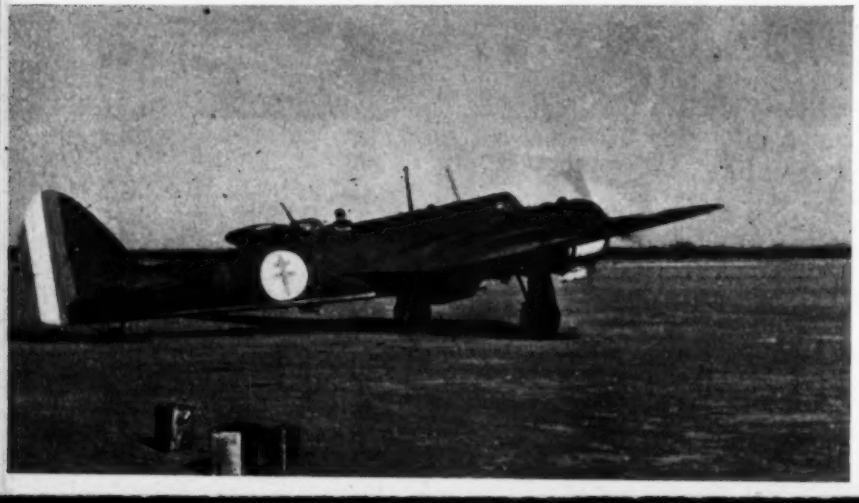
A more experienced officer is Col. Valin, Chief of Staff of the Free French Air Force, who is a specialist in night flying. Of the 1,800 hours of flight which he has to his credit, 500 hours have been accomplished by night. He was one of the first Air Force officers to realise the possibilities and the probability of the future development of night bombardment from the air. Nevertheless, he began his Service career not in the Air Force, but in the Cavalry, joining up during the Great War in 1917, when he was nearly nineteen years old. As a result of his heroism in Champagne he was decorated with the Croix de Guerre. After the war he spent a year at the celebrated cavalry school of Saumur. On passing out of Saumur, Col. Valin became interested in racing, but he was not content with post-war life in the army, and went to the Levant and then to Morocco, taking part in the Riff campaign of 1925.

Experienced Chief of Staff

On returning to France he transferred to the Air Force. Observer in 1927, pilot in 1928, he then began to specialise in night flying and night bombardment. He completed his studies in air tactics and was moved to the Operations Staff, where he remained for nearly three years. One month before the outbreak of the war he was chosen for the National Defence Cabinet of the President of the Council of Ministers, but instead of taking up this post he went on active service with his unit. Subsequently, he was called upon to fulfil higher duties and, regretfully, he left the airfield for the Air Force staff in the north-east theatre of operations. There he had an opportunity of working in close collaboration with the R.A.F. In 1940 Col. Valin went to Brazil on an interesting mission, and the armistice found him still in Brazil, where he had to finish his contract. This he did loyally, determined to join de Gaulle as soon as he was free. He took the first boat from Brazil after the termination of his work, and so he came to England.

A brief survey of the air operations at Kufra and in Egypt up to April 25th was given recently by Col. Valin. This time limit was set in order to ensure complete accuracy in the information. Looking at a map of Libya the name of Kufra is seen by itself in a big yellow patch, which means that this oasis is lost in the middle of the sands. It is, therefore, easy to imagine what an effort is necessary to organise a properly situated base for attack and bring to it supplies, fuel and munitions. Account must also be taken of working conditions in the desert, with burning sun all day, bitterly cold nights, frequent sandstorms and, to add still further to the difficulties of flying in desert regions, inaccurate maps.

The first formation took up its position on January 31st. On February 3rd, having loaded its bombs without any winch or bomb carriage, it most successfully carried out its first raid on the small fort of El Tag in Kufra. On February 5th the Italian aerodrome in the oasis was bombed and rendered unfit for possible landings of relief parties. Two crews failed to return to the base. On the next day the formation went to look for them, the sandstorm of the



A Blenheim of the Free French Air Force setting out on a raid on an objective in Abyssinia.

FREE FRENCH AIR FORCE

previous day still continuing with unabated fury. One of the machines was found, the other never returned, and it was learned later that the crew had been taken prisoner. That was the only loss. Fully to appreciate the value of the work done by these crews, who carried out seventeen bombardments, it should be remembered that they went out to repair their comrades' machines in particularly difficult weather conditions, that the work of the mechanics who repaired their engines was done under a blazing sun piercing through clouds of sand, and that all the bombs were loaded by hand.

Side by side with the R.A.F. the Free French Sudan squadron has for a considerable time been taking part in the operations in Abyssinia and has frequently been mentioned in British official communiqués. During a recent raid on Gondar aerodrome one of the last Italian fighter-planes still remaining in the country was brought down by a Blenheim medium bomber of the Free French squadron. The pilot, a French Flight-Lieutenant who fought in France until just before the armistice, tells the story of this unequal contest: "We had just completed a first flight over Gondar aerodrome, dropping two bombs on a hangar. I was getting ready for a second attack when I saw an Italian C.R.42 coming out of the clouds about two miles off and heading straight for us. I immediately made for the clouds, but the Italian machine gave chase and for two minutes was not more than two hundred yards away, firing all the time. Our aircraft was peppered with tracer bullets. One of these, hitting our machine just about the shield bearing the Cross of Lorraine in the middle of the cockpit, missed our gunner by about twenty inches. He quickly put out the tracer bullet, but there was such a smell of burning that I thought something more serious had happened. The Italian machine, closing in upon us, dived under the Blenheim's tail to attack from below. Seeing this manœuvre, I banked suddenly so as to get the enemy within range of the machine-gunner, who had anxiously been awaiting the crucial moment. He released a long burst of tracer bullets, some of which went straight into the enemy's engine. As a result the distance between us and the Italian was rapidly increased, and we finally saw him crash on rough ground."

A French pilot, serving with the R.A.F. in the Western Desert, has his own French Morane 406 monoplane. Note the shell gun projecting through the airscrew spinner.

The Cross of Lorraine

The Free Frenchmen, it might be mentioned, have retained their uniforms, with the addition of the Cross of Lorraine, that bears the prophetic inscription, "France Libre."

Admiral Muselier, commanding the Free French Naval and Air Forces, in the course of a recent speech in London, said he could not forget that he was a fellow-pupil of Darlan's and that they went into action together in China and in the last war; so he would say nothing about that officer, an attitude which he felt sure his audience would understand. He proceeded to talk of the young pilots who are being trained over here in the methods of the R.A.F. and who, in increasing numbers, will join the F.F.A.F. in order to fight shoulder to shoulder with the R.A.F. "Frenchmen of Great Britain," he said on the wireless, "Frenchmen of France who are listening to me, you can be proud of the young aerial army of Free France!" That also is a statement which his wide audience will have appreciated and understood.

Cpl. du Fretay, of the Free French Air Force, was recently decorated with the British Empire Medal.

Admiral Muselier (right) commands the Free French Air Force and Free French Naval Forces.

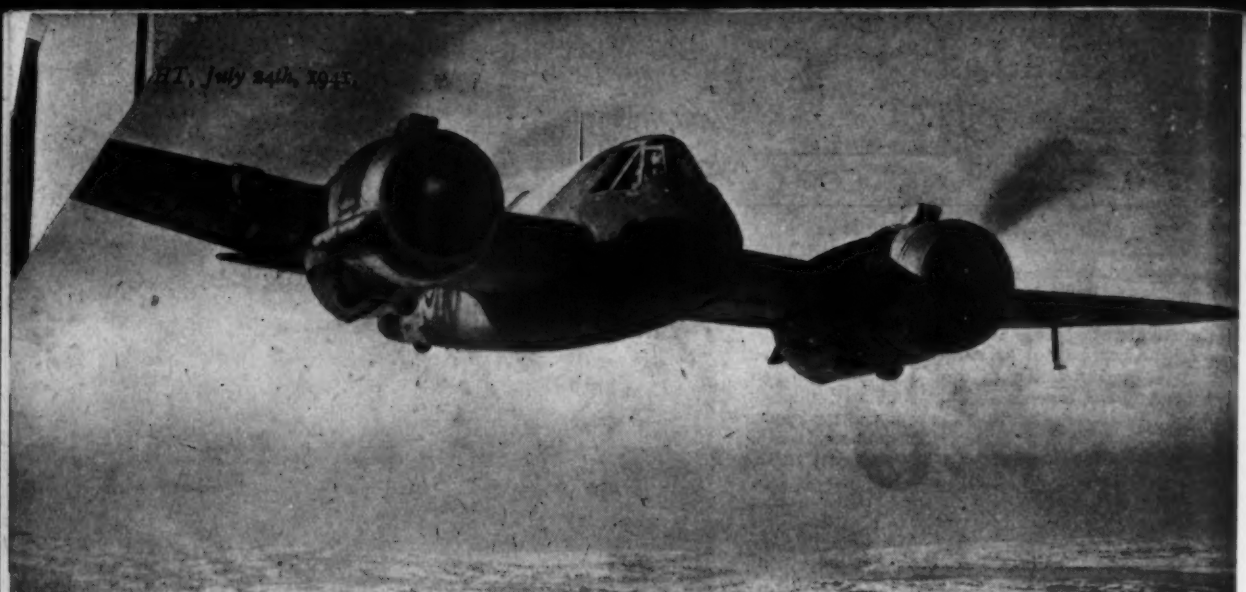
Taken to Heart

EVERY now and again a journal such as ours throws out a "pebble," in the form of a comment, criticism or suggestion. Theoretically the waves should reach the farthest shore, but one cannot always see them. We may champion this cause or advocate that procedure and yet never know, even if the desired result is achieved, whether it is our advocacy which has brought this about.

But sometimes the results are seen. In his article, "Give Us the Tools, America!" in *Flight* of February 20th, Mr. Bruce Foster included these words:—

"Export figures (of American aircraft) are published freely by your Department of Commerce, so they (the Germans) have no trouble in obtaining these. It is suggested that this information be not released to our enemy as it is of value to him."

In a recent letter from J. Parker Van Zandt, who is economic and technical consultant to the Civil Aeronautics Board, now part of the U.S. Department of Commerce, the writer indicated that "something" was being done and we did not have long to wait to find out what it was. For the letter was followed within six days by the June 7th issue of *Foreign Commerce Weekly*, published by the Department of Commerce, containing the announcement: "In the interests of national and hemispheric defence, the Department has decided to cease publishing detailed statistics concerning the country of destination of our exports."



NIGHT FIGHTER BY DAY: A Hercules-engined Beaufighter photographed from a Blenheim.

NIGHT FIGHTER OPS.

"Flight" Spends a Night with a Beaufighter Squadron

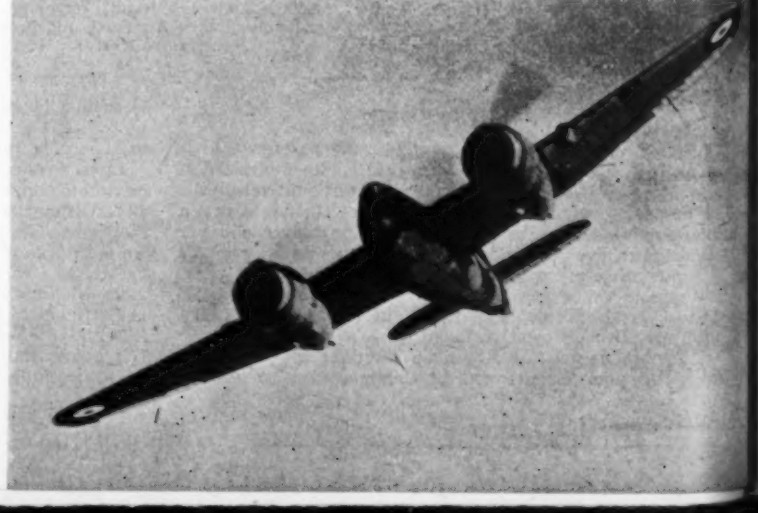
TO write of night fighting operations is to write of radiolocation and most of the other secret devices wielded by the R.A.F. as well. Readers must, therefore, bear with us if their appetites for details of the most interesting form of defence ever devised is only whetted by general remarks. If we could write for the eyes of honest men only a most thrilling tale could be unfolded, but, unfortunately, this is not so, and defence regulations insist that nothing of use to the enemy may be written.

Night fighting at one time was a laborious business. Pilots just pushed around the sky in likely places and hoped to run across the enemy in that area. Now, they are directed by, and are in touch all the time with, their ground station, and there is no feeling at all of remoteness. In other words, the infinitude of space has been captured and compressed into a place known as Operations Room. We shall not describe this wonder box except to say it is here that all the movements of enemy and our own aircraft are shown on a large-scale map in front of a Controller, who is the man who conducts the battle. Let us imagine that we can tap in on all the conversations taking place between the air and the ground, and, at the same time, watch the proceedings on the aerodrome. For ease of description we will invent our own code words—the machine is Surrey Ten and the ground station Mole.

With a deep-throated roar from its two sleeve-valve "Hercules," a Beaufighter hurtles across the aerodrome to take off in the darkness, and immediately comes the message: "Surrey Ten calling, Surrey Ten calling. I am airborne." The ground station acknowledges this and indicates the exact place and height to which the Beaufighter must proceed to start the night's work. On the 'drome watches are looked at, and there is a general observance that it is still rather early to open shop. Jerry is a methodical devil and has a weakness for doing the same thing at the same time each day. In the last war it was said that the best way of dodging German shells was to memorise the programme and consult a watch frequently.

Meanwhile, every so often, "Surrey Ten" calls for a fix to check his position, and this is given without any delay. The night wears on. In the dispersal hut other air crews sit about in varying attitudes, waiting for instructions to take off, and, of course, there are several machines up at one time. For clarity's sake we will imagine only one is in the air. A flash in the night and, it seems simultaneously, a voice from a distant aircraft comes over the radio: "A machine has crashed in flames south-east of — (here follows a code word for a pin point on the map). Ambulances and rescue workers proceed to the spot at top speed, but while they are on their way a blinding flash lights the countryside for miles around—a Jerry has spun into the ground and caught fire with a full load of bombs still on.

Monotony reigns again until Surrey Ten is told to come in and land. Here things brighten up because, as he begins to lose height, he hears reports of enemy aircraft nearby. A conversation something like this goes on between fighter and ground: "Surrey Ten calling, Surrey Ten calling—is there any trade about? I don't want to land if you can find a customer for me." "Hullo, Surrey Ten," answers Mole, "all right, stay around where you are for a while, it looks as if we might open shop any moment now." The complete and intimate picture realised by this radiolocation—which functions equally well by night as by day—suddenly materialises when loud speakers, in every place



TWIN-ENGINED AGILITY: Night fighters must be as easily manoeuvrable as their daylight brothers. A Beaufighter breaking away after a dummy attack.

NIGHT FIGHTER OPS.

where men are, warn the aerodrome defence stations that an enemy aircraft is approaching the aerodrome. The direction and height are also given.

Next comes the real stuff. Without having to enquire as to his whereabouts, Surrey Ten is informed by Mole that he has a "customer" for him. A height and a bearing are given. Mentally the Beaufighter can now be seen tearing through the night sky with Hercules flat out. Here is another secret. Exhaust glow and flames cannot be tolerated on a night fighter, otherwise the quarry might open the shooting first. The exhaust pipes do *not* glow, and exhaust flames do *not* show. Enough said. Quite suddenly—almost as a shock—comes another remark from the ground station, which brings that air of completeness again. The voice quite casually says: "Hello, Surrey Ten, Hello, Surrey Ten, keep your eyes open, there is a friendly machine flying very close to you, be careful."

Night Chase

Again one is mentally transported to where powerful machines are chasing a quarry at over 400 feet per second and senses the confidence the air crews have in the ground staff. The quiet, unperturbed "O.K. Mole. Thank you" as a reply speaks of a standard of training and modest gallantry which can only be contemplated with thankfulness and emotion. All over the night sky of Britain—every night, fine or foul—ground stations and night fighters talk in quiet and jocular tones of things which would send ordinary folk dizzy with excitement. Excitement, of course, there is at times, fierce excitement. When, for instance, after a long and arduous chase the enemy is intercepted and finally comes into the gun sights. A press on the joy stick gun trigger lets loose pandemonium from a battery of guns, and a Junkers, Dornier or Heinkel out on the nefarious work of "grosser Deutschland" literally blows up in front of the night fighter. At such times night fighter pilots become very human, and a string of quite unprintable and often unintelligible remarks is faithfully reproduced in the ear of his very senior officer controlling the proceedings.

But back to our Surrey Ten Beaufighter. Luck is out to-night. The Ju 88 he was chasing seemed to smell something in the offing, and, after waltzing around the sky for a while, he put his nose down and beat it for home, there perhaps to be roughly handled by one of our Douglas Havocs (night fighter-bombers which lurk in the hours of darkness over the *Luftwaffe* aerodromes in occupied territories) as he throttles back to land in France.

"Trade" slackens. A snoop around shows eight enemy machines on their way home. These are being attended to by other fighter stations, and Surrey Ten comes in to land unseen, heralded only by the squeal of brakes as the Beaufighter is brought to rest. At the end of a short snooze in an armchair in the Mess the radio is turned on for the early morning news. "Here is the communiqué issued by the Air Ministry and Ministry of Home Security. Enemy activity over this country during the night was slight. Five bombers were destroyed." For the night in question this figure must represent a very comfortable percentage of casualties. It would be ridiculous even to suggest that big raids will not take place again, but one thing is certain: All the fun in dropping hundreds of tons of bombs on comparatively undefended civil populations is gone. Every bomb—whether it is dropped to fall where it will or whether it is sighted on a military target—will have to be paid for at full price

PILOTS' ROOM: Night fighter pilots waiting for orders to take the air.

AIRACOBRA ARMAMENT

DELIVERIES of the P-39 Airacobra from the Bell plant at Buffalo have now risen to the point at which complete squadrons of the U.S. Army Pursuit Groups are being equipped with them, records the American monthly, *Aero Digest*. We may therefore reasonably expect that deliveries of the British version, known as the Caribou, will be made soon. This machine has already been described in *Flight* for May 22nd, and its Allison shaft-drive engine in the June 19th issue.

Our American contemporary, in its June, 1941, issue, gives some later information relative to the Airacobra. The airscrew is a Curtiss constant-speed electric with a hollow hub, through the 3in. aperture of which fires a 37 mm. shell gun. This gun weighs 106lb., and can fire 120 shells per minute, either explosive, armour-piercing or tracer. Other armament consists of two .50 calibre heavy machine guns housed in the nose and synchronised to fire through the airscrew at the rate of 850 per min. About half-way along each wing are two .30 calibre machine guns which can fire at the rate of 1,200 per minute.

The amount of ammunition carried by the Airacobra is greater than that carried by any other single-engined fighter now in service. For its .30 calibre guns, it carries a total of 4,000 rounds. This compares with the total of 2,400 carried by the Spitfire for its eight guns (says *Aero Digest*). For the .50 calibre guns 560 rounds are carried, together with 30 shells for the 37 mm. shell gun.

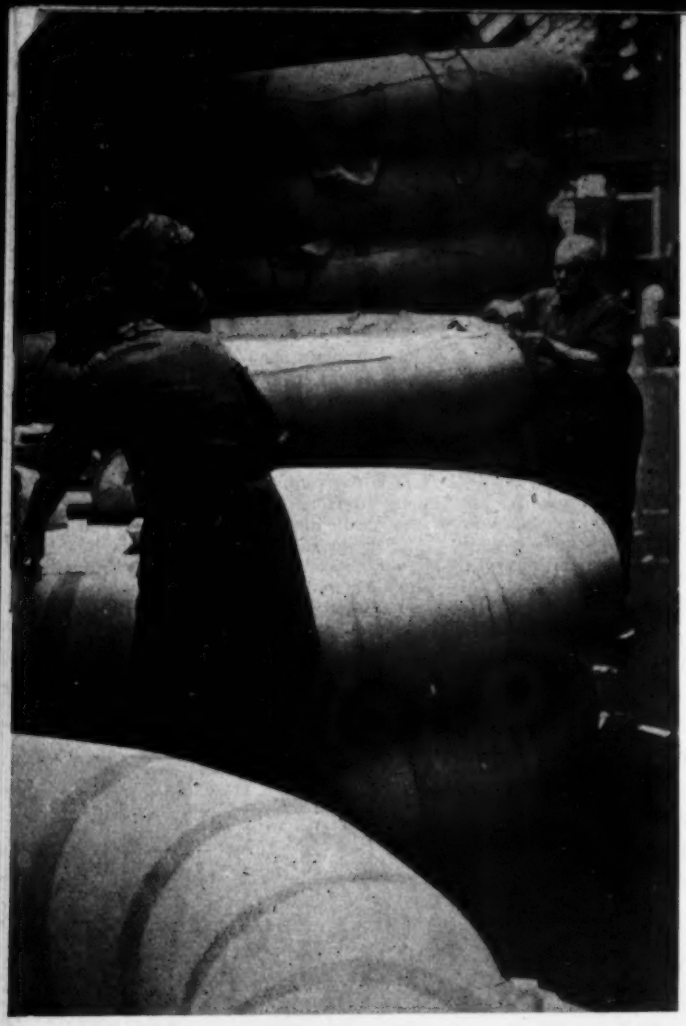
The petrol tanks, which are of the self-sealing variety, are carried in the wing just outboard of the retractable undercarriage and inboard of the two machine guns. Armour protects the pilot and the vital parts of the aeroplane, including the reduction gear immediately behind the airscrew. An arched beam behind the pilot, part of the cockpit cover structure, acts as structural protection in the event of a nose-over. The oxygen bottle is in the nose behind the reduction gear, the engine oil tank is at the rear of the engine, and the radio transmitter and receiver are housed in the tail of the fuselage.

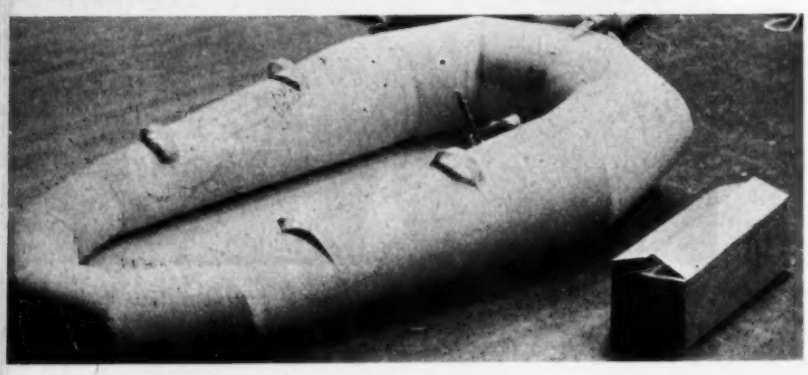
The 12-cylinder Allison V-1710 engine has a fuel consumption of 0.488 lb. per h.p./hr., which gives the Airacobra a normal range of 1,098 miles. Cruising consumption is given as 21 gals. per hour.

THIRTY-ONE YEARS' FLOTATION

Pioneer Still Producing Balloons and Dinghies

IN a welter of high wing loadings and lb. per h.p. it is pleasant, for a change, to turn to things lighter than air and lighter than water. Early this year, March 10th to be precise, R. F. Dagnall celebrated the completion of thirty-one years of airships and flotation gear manufacture and design. He started his career, strangely enough, in one of the heavy industries, being in the drawing office of the Thames Iron Works until 1910. The next four years Mr. Dagnall devoted almost entirely to the pilotage and manufacture of free balloons and airships, collaborating with E. T. Willows. During the 1914-18 war he was for a time works manager and later general manager of Airships, Ltd., who ran four factories with over 1,100 employees. They constructed man-carrying kite balloons for artillery observation, small non-rigid airships (blimps) for anti-submarine patrol over the Channel and North Sea, tank tents, and inflatable salvage pontoons for raising sunken vessels. In 1920 the R.F.D. Company was formed, and apart from a short lapse into heavier-than-air by the construction of gliders—which, incidentally, were very good gliders—their efforts since then have been devoted to automatic flotation gear for aircraft and pilot, illuminated wind-direction indicators, drogue targets for air-to-air gunnery training, and motor-driven pneumatic dinghies. The Youngman Dinghy, which automatically releases and inflates itself if an aircraft comes down in the water, has been developed to a very large extent by the R.F.D. Company. One of their latest products is the new

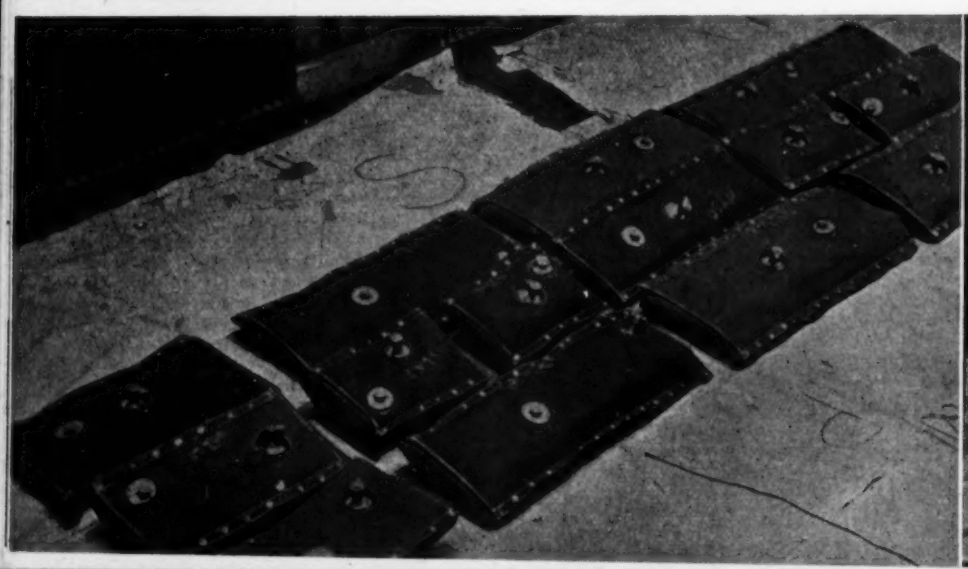




(Top, left) Bombers' dinghies being fitted with life lines and other external fittings.

(Left, centre) The single-seat parachute pack dinghy shown inflated and packed. One of these is carried by each fighter pilot.

Bottom row (left) Flotation bags for a Wellington bomber. These fit in the bomb bays and are automatically inflated if the aircraft descends on the water. (Centre) The same set of bags inflated. (Right) Testing the fin of a barrage balloon.



single-seat dinghy which is carried in the parachute pack of every fighter pilot. As would be expected of a firm with such a history, it is not surprising to learn that they are one of the chief concerns which are producing barrage balloons of varying design in a number of factories.

It is ironical that the modern dive-bomber should have as one of its greatest enemies the earliest form of aerostat, and equally so that the fighter pilot who rides the sky at 35,000ft. should a few minutes later save his life by an adaptation of a holiday-maker's plaything.

(Top, right) Making a test inflation on one of the balloon erection floors.

(Centre) Knotting and splicing is done mostly by old sailors.

(Below) Mr. R. F. Dagnall, who has completed 31 years of design and production of balloons, flotation gear and pneumatic dinghies.

Twenty-ninth of the Series

FRIEND or FOE?

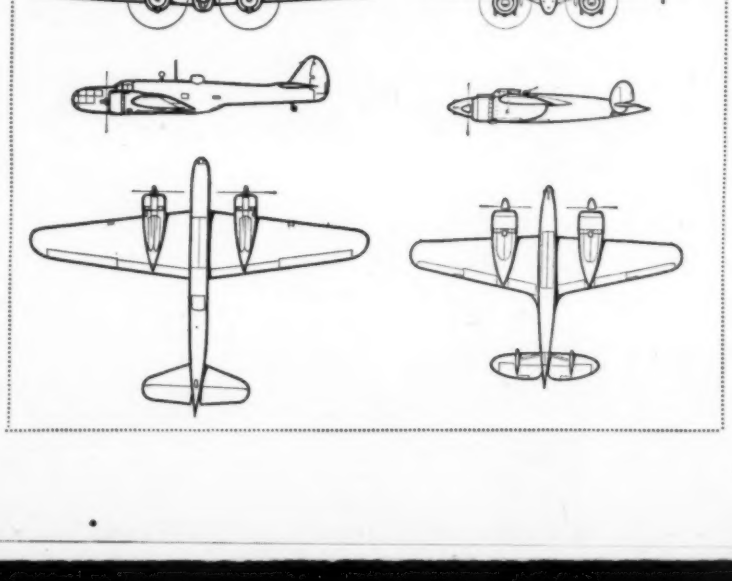
Two Middle East Rival Bombers : The Maryland and the Breda 88

MARTIN MARYLAND : Low-wing, tapers on both edges to small rounded tips. Slight dihedral from roots. Twin radial engines with thrust line through leading-edge. Oval section fuselage with blunt transparent nose and reduced depth aft of bomb bay but stepped up at the tail. Upper turret amidships retractable. Undercarriage retracts into nacelles. Tapered tailplane, fairly large fin and rudder.

BREDA 88 : High-wing with slight taper to fairly broad round tips. Small dihedral from roots. Large diameter radial engines in underslung nacelles, into which undercarriage completely retracts, extending back to trailing-edge. Short, well streamlined fuselage with slim nose ; gun position aft of pilot's covered cockpit. Strut-braced tailplane with curved edges carrying twin egg-shaped fins and rudders set inboard.

IT was originally intended, as stated at the end of last week's article in this series, to compare the Baltimore with the Maryland in this week's feature. But the Breda 88 has now been chosen instead of the Baltimore (which will be dealt with later) because this machine, which is by way of being the "star turn" of the *Regia Aeronautica*, and the approximate Italian counterpart of the *Luftwaffe's* Ju 88 has several times been mentioned in Middle East activities, where the Maryland is also in service. These two machines, therefore, may be regarded as immediate rivals in that theatre of war at the present time. Incidentally, the numerical similarity between the Breda 88 and the Ju 88 is, of course, pure coincidence.

A curious state of affairs also exists in relation to the Maryland in the Middle East. Most of those now serving with the R.A.F. were the residue of a French contract taken over by Great Britain when our Ally collapsed, and so have instruments and other fittings marked in French. During the now concluded tussle with the Vichy forces in Syria the task of British and Free French fighter pilots was complicated by the fact that their Vichy opponents were also using Marylands (delivered to France before her capitulation)—a circumstance which patently called for extra vigilance on both sides. The terms of the settlement in Syria, however, now bring all the Marylands back on the side for whose benefit they were naturally intended by the American firm of Glenn Martin.



British pilots who fly the Maryland have spoken highly of this aircraft's performance and general behaviour. It cannot be said, however, that it is the most beautiful of aeroplanes. Yet even its lack of good looks is an advantage to the spotter, for a glance at the side view will show that the shape of its fuselage makes it quite easy to recognise. More than one British design is at least equally distinctive in its unloveliness and equally efficient as a fighting unit.

When seen head-on, however, the oval-sectioned fuselage and the unbroken dihedral of its low-wing design give the Maryland a very clean frontal appearance. The two radial engines, it will be noted, are centred on the leading-edge, a feature which adds to its symmetry from this view. In plan, the wings taper uniformly from the roots to comparatively small round tips. The transparent nose is rather blunt and the top line of the whole fuselage may be said to rise in three levels, the "steps" being formed by the front of the pilot's

FRIEND OR FOE?

cabin and the very unusual step-up near the tail. The bottom line is also broken by a step-up aft of the bomb bay, where the section of the fuselage is materially reduced. The upper gun turret amidships is partially retractable, and the undercarriage retracts fully into the engine nacelles. The cantilever tailplane is tapered on both edges to round tips, and the fin and rudder are fairly large.

Turning now to the Breda 88, this Italian design (which holds a number of records) is well streamlined and would be strikingly handsome were it not for its somewhat cumbersome tail unit. In the writer's opinion, no twin fin and rudder design can compare with the æsthetic grace of a well-proportioned single fin and rudder. The cantilever high-wing tapers moderately to round tips and has a not too pronounced dihedral from the roots. The big radial engines are mounted in underslung nacelles which extend back to the trailing-edge and stow away the retractable undercarriage completely out of sight. The pilot's cockpit is neatly faired off, and at the back of it is a single gun position. The fuselage is rather short—and is made to look even shorter by the aforementioned hefty tail assembly—but tapers nicely to its rear extremity. The tailplane has rounded edges, and the egg-shaped fins and rudders are set in the middle of the half-span, a feature which apparently sacrifices aerodynamical efficiency to ease of construction.

Next week: The Mohawk and the Vanguard.

AMERICAN BOMBERS and FLYING BOATS

Eight Types Which U.S. Factories are Building for Britain

THE six heavy bombers and two flying boats described here complete the list of American types now being produced for the R.A.F. and Fleet Air Arm. Eight fighter types and four dive-bombers have already been described and illustrated, and the complete range is included on the *Flight* Identification Chart of American aircraft for the R.A F. and Fleet Air Arm now on sale.

Lockheed Hudson (EB-14).—Sharply tapered mid-wing with six flap guides projecting from the trailing-edge on each wing. A modification of the Lockheed-14 airliner, the fuselage is of generous depth and of all-metal semi-monocoque construction, with a power-operated gun-turret well back towards the tail. Wings and tail are all-metal cantilever, the former having Fowler flaps and the latter being fitted with twin fins and rudders. Two Wright Cyclone 9-cyl. 1,000 h.p. engines, with Hamilton Standard Hydromatic airscrews. Undercarriage retracts into engine nacelles. Top speed 284 m.p.h. at 15,000ft. Cruising speed 255 m.p.h. at 19,000ft. Service ceiling 25,000ft. Range 2,160 miles. Dimensions: Span 65ft. 6in.; length 44ft. 4in.; wing area 551 sq. ft.; wing loading 33.6 lb./sq. ft.

Douglas Boston (DB-7).—Mid-wing, with moderate taper to rounded tips, is all-metal, cantilever and built in four sections with trailing-edge flaps. Stressed skin, semi-monocoque, all-metal fuselage. Retractable tricycle undercarriage. All-metal cantilever tail with fixed surfaces metal-covered and movable ones fabric. Two Pratt and Whitney Twin Wasp SC3-G engines rated at 900 h.p. at 15,500ft. and 1,050 h.p. for take-off. Hamilton Standard Hydromatic airscrews. Top speed 320 m.p.h. Cruising speed 280 m.p.h. Service ceiling 17,000ft. Range 1,200 miles. Dimensions: Span 61ft. 4in.; length 47ft.; wing area 464.8 sq. ft.; wing loading 32.3 lb./sq. ft.

Martin Maryland (167-W.)—Low mid-wing tapers on both edges to round tips. Upper gun-turret amidships retractable. All aluminium alloy construction with semi-monocoque fuselage built in three sections. Fabric covering to rudder and elevators. Two Pratt & Whitney Twin Wasp CS3-G engines of 1,050 h.p. at 7,700ft. Curtiss constant speed airscrews. Top speed 305 m.p.h. at 14,000ft. Cruising speed 248 m.p.h. at 11,500ft. Service ceiling 29,500ft. Range at cruising speed 1,300 miles. Dimensions: Span 61ft. 4in. Length 46ft. 8in. Wing area 538.5 sq. ft. Wing loading 28.4 lb/sq. ft.

Glenn Martin (B-26).—High-wing tapers to round tips. Leading-edge of fin and rudder well forward of tailplane. Upper gun-turret towards rear of fuselage. Retractable tricycle undercarriage. Two 18-cylinder Pratt & Whitney Double Wasp engines giving 1,850 h.p. for take-off. Lighter than the Martin B-26, a new medium bomber, the Baltimore, has two Wright engines of 1,600 h.p. each and carries a crew of four.

Boeing Flying Fortress (B-17).—Low-wing, with symmetrical aerofoil section and tapered on both edges, is all-metal, stressed skin, cantilever construction with semi-monocoque panels. Split trailing-edge flaps electrically operated. Fuselage is also all-metal, semi-monocoque consisting of bulkheads, longitudinal and circumferential stiffeners and smooth metal stressed skin. Four Wright Cyclone engines with exhaust-driven turbo superchargers giving 1,200 h.p. for take-off. Hamilton Standard Hydromatic full-feathering airscrews. Hydraulically operated retractable undercarriage and retractable tailwheel. Top speed 325 m.p.h. Cruising speed 270 m.p.h. at 14,000ft. Range 3,500 miles at cruising speed. Dimensions: Span 103ft. 9¼in. Length 67ft. 10⅛in. Wing loading 26.1 lb./sq. ft.

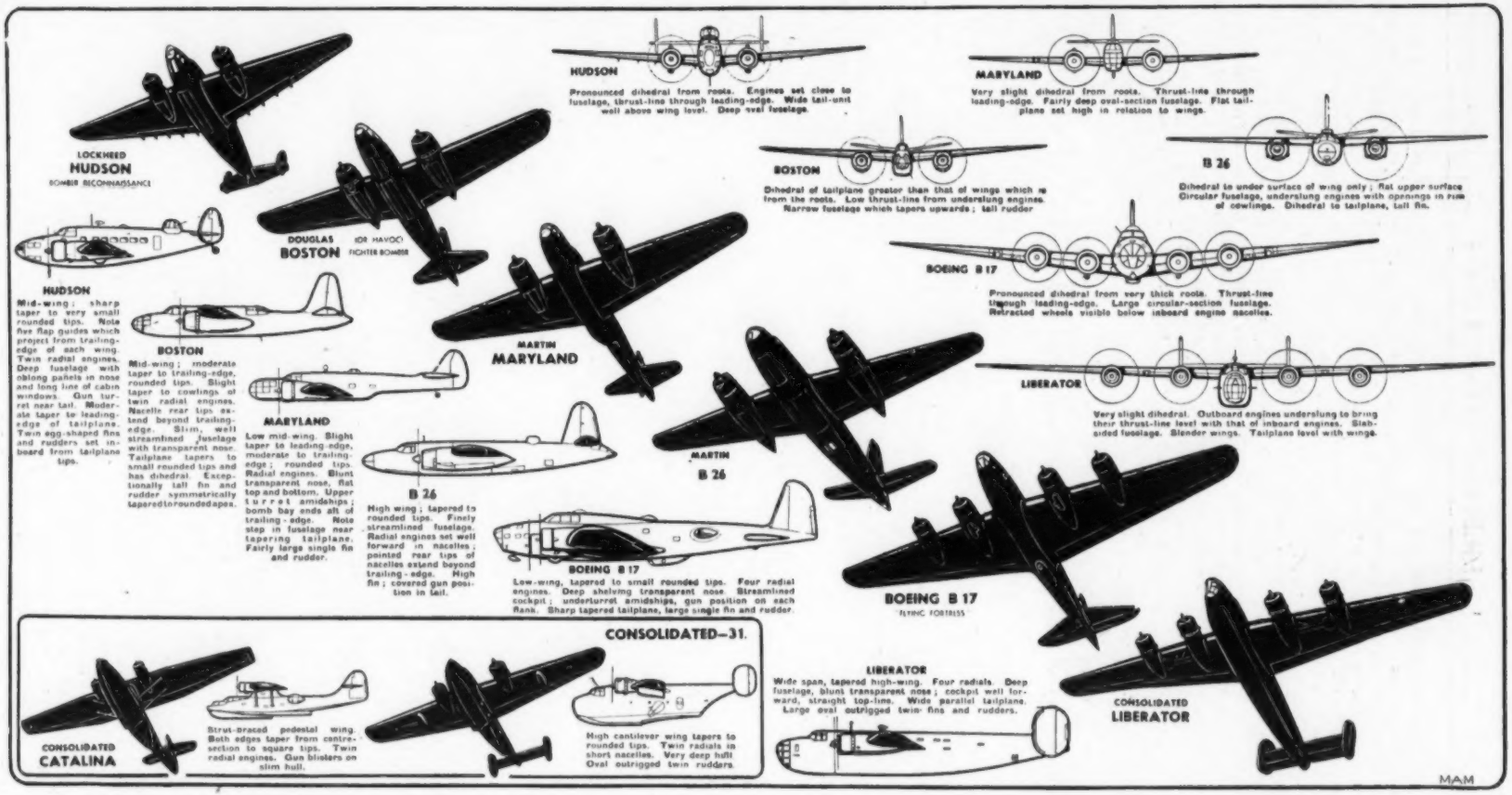
Consolidated Liberator (B-24). — High aspect-ratio tapered high-wing of aluminium alloy stressed skin built in three sections. Fowler flaps. Fuselage also in aluminium alloy and of monocoque, stressed skin construction. All control surfaces fabric covered. Cantilever tailplane with twin fins and rudders mounted on the tips. Retractable tricycle undercarriage. Four Pratt & Whitnew Twin Wasp 1,050 h.p. engines with Hamilton Standard Hydromatic airscrews. Top speed quoted at 300 m.p.h. Range about 3,000 miles, but no further performance figures yet released for publication. Dimensions: Span 110ft. Length 63ft. No further details released.

Flying Boats

Consolidated Catalina (Model 28). — Strut-braced pedéstal wing of aluminium alloy, stressed skin construction; ailerons and trailing-edge fabric covered. Auxiliary floats retract to form wing tips. Hull of monocoque construction also in aluminium alloy with smooth skin. Cantilever metal tail group with fabric covered movable surfaces. Two Pratt & Whitney Twin Wasp engines of 1,050 h.p. at 7,800ft. Top speed 199 m.p.h. at 7,800ft. Cruising speed 179 m.p.h. Range 4,000 miles. Dimensions: Span 104ft. Length 65ft.2in. Wing area 1,400 sq. ft. Wing loading 19.3 lb./sq. ft.

Consolidated-31.—High cantilever wing with rounded tips. Deep narrow hull and twin fins and rudders on tips of high aspect-ratio cantilever tailplane, but no constructional details yet available. Two Wright Duplex Cyclone engines of 2,000 h.p. Top speed 290 m.p.h. Range 2,500 miles. Dimensions: Span 110ft. Length 73ft. Wing area 1,050 sq. ft. Wing loading 48 lb./sq. ft.

AMERICAN BOMBERS and FLYING BOATS

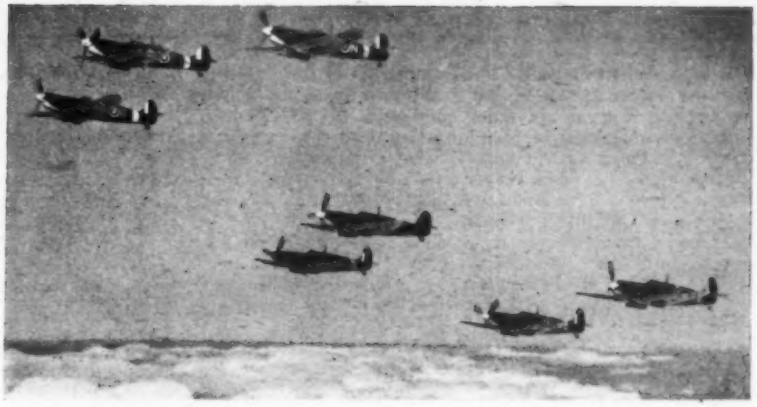

LOCKHEED
HUDSON
BOMBER RECONNAISSANCE
HUDSON
Mid-wing; sharp taper to very small rounded tips. Note flap guides which project from trailing-edge of each wing. Twin radial engines. Deep fuselage with oblong panels in nose and long line of cabin windows. Gun turret near tail. Moderate taper to leading-edge of tailplane. Twin egg-shaped fins and rudders set inboard from tailplane tips.
DOUGLAS (OR HAVOC)
BOSTON
FIGHTER BOMBER
BOSTON
Mid-wing; moderate taper to trailing-edge, rounded tips. Slight taper to cowlings of twin radial engines. Nacelle rear tips extend beyond trailing-edge. Slim, well streamlined fuselage with transparent nose. Tailplane tapers to small rounded tips and has dihedral. Exceptionally tall fin and rudder symmetrically tapered to rounded apex.
MARYLAND
Low mid-wing. Slight taper to leading edge, moderate to trailing-edge; rounded tips. Radial engines. Blunt transparent nose, flat top and bottom. Upper turret amidships; bomb bay ends aft of trailing-edge. Note step in fuselage near tapering tailplane. Fairly large single fin and rudder.
MARTIN
MARYLAND
B 26
High wing; tapered to rounded tips. Finely streamlined fuselage. Radial engines set well forward in nacelles; pointed rear tips of nacelles extend beyond trailing-edge. High fin; covered gun position in tail.
MARTIN
B 26
BOEING B 17
Low-wing, tapered to small rounded tips. Four radial engines. Deep shelving transparent nose. Streamlined cockpit; undersurface amidships, gun position on each flank. Sharp tapered tailplane, large single fin and rudder.
HUDSON
Pronounced dihedral from roots. Engines set close to fuselage, thrust-line through leading-edge. Wide tail-unit well above wing level. Deep oval fuselage.
MARYLAND
Very slight dihedral from roots. Thrust-line through leading-edge. Fairly deep oval-section fuselage. Flat tailplane set high in relation to wings.
BOSTON
Dihedral of tailplane greater than that of wings which rise from the roots. Low thrust-line from underslung engines. Narrow fuselage which tapers upwards; tall rudder
B 26
Dihedral to under surface of wing only; flat upper surface. Circular fuselage, underslung engines with openings in rear of cowlings. Dihedral to tailplane, tall fin.
BOEING B 17
Pronounced dihedral from very thick roots. Thrust-line through leading-edge. Large circular-section fuselage. Retracted wheels visible below inboard engine nacelles.
LIBERATOR
Very slight dihedral. Outboard engines underslung to bring their thrust-line level with that of inboard engines. Slab-sided fuselage. Slender wings. Tailplane level with wings.
BOEING B 17
FLYING FORTRESS
CONSOLIDATED-31.
CONSOLIDATED
CATALINA
Strut-braced pedestal wing. Both edges taper from centre-section to square tips. Twin radial engines. Gun blisters on slim hull.
High cantilever wing tapers to rounded tips. Twin radials in short nacelles. Very deep hull. Oval outrigged twin rudders.
LIBERATOR
Wide span, tapered high-wing. Four radials. Deep fuselage, blunt transparent nose; cockpit well forward, straight top-line. Wide parallel tailplane. Large oval outrigged twin fins and rudders.
CONSOLIDATED
LIBERATOR
MAM

Note :—The general arrangements of the Boston also apply to the Havoc which is structurally the same machine but modified in certain respects for duty as a night fighter. No particulars of this, however, may be published. The Martin Maryland is now in service in the Middle East, many of these being the residue of the French contract which Britain took over when our ally collapsed. One curious result of this was that Marylands were operating on both sides in the recently-concluded strife with the Vichy troops in Syria.

WHICH ROAD TO VICTORY

Air Alone, or Land Plus Air

By MAJOR F. A. de V. ROBERTSON, V.D.



. . . . . The Air Staff now says that nobody can ever have too many fighters.

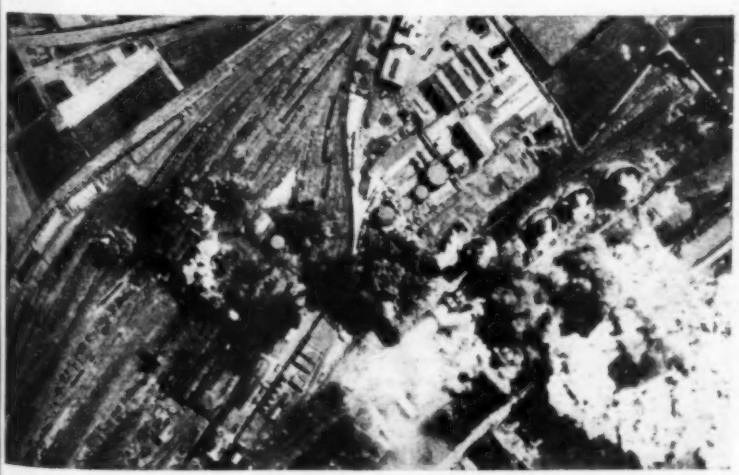
NOT long ago a writer in *The Times* put a trenchant question to the Government. He asked: "Shall we build up the biggest first-line bomber force the world has ever thought of and blast the enemy out of the sky over the next two years? Or shall we concentrate primarily on a formidable number of mechanised divisions with a large Army air arm in support, consisting of close support aircraft of all types in numbers never yet contemplated? Though in either case the Navy holds the seas and an adequate Home Defence Fighter Command is kept up, we must decide on one of these two main lines. We cannot have both. There is not enough man power or industrial capacity for both to be done on the required scale, even with the help of America. Try for both and we fail in both. Choose one and, given that the choice is governed by a sound long-term strategic plan, we are then set on the road to victory."

The writer declined to offer advice as to which ought to be chosen. *The Times*, in a leading article, agreed that the choice must be made, but added that neither choice could be exclusive; on whichever form of large air fleet we decided, we must still have a modicum of the other.

We must presume that the War Cabinet and the Imperial Defence Committee have considered this question. We must presume that the Chiefs of Staff Committee has been asked to examine it and report on it. We cannot venture to guess what decision has been taken, and we can feel no certainty that the Chiefs of Staff would give a unanimous decision. If they did do so, that decision does not seem to have inspired all the officers of the Army and the Air Force. Frequently have Air Force officers, some of them senior in rank and highly placed, expressed a confident belief that an overwhelming bomber force would give us victory. On the other hand not a few Generals have assured the nation that the Army would strike the final blow which would bring Germany to her knees.

It may be taken for granted that the Generals appreciated the fact, which the public has lately come to realise, that an Army cannot win a great victory unless it holds superiority in the air. So it seems that each Service is under the impression that it is the selected one which will finally beat the enemy, that by implication it is to have the greatest possible air strength at its disposal, and that the Ministry of Aircraft Production is working with the object of providing it, and no one else, with that great air fleet. With the Ministry of Aircraft Production must be coupled the output of the United States.

In the early days of expansion (and the British Empire is still in an early stage) not much hint of future strategic policy can be gleaned by studying the orders placed. The Empire still needs many more fighters, many more bombers, and many more reconnaissance machines. We may still build or buy very large quantities of each of these classes without disclosing our ultimate strategic purpose. Later on our intentions may be revealed by our orders. Concentration on heavy bombers would suggest aiming at an Air Force win, while a demand for very large numbers of some form of dive bomber would intimate an intention to beat the Germans on land. The Minister for Aircraft Production has confessed that he has not yet received requests for dive bombers, but that does not prove anything. It would be rather late in the day for us to set about designing a new type of a new class and putting it into production. American factories, which have already produced dive bombers, may be relied upon to supply all British needs in that respect.



. . . . . What is of great profit, is to cut the lines of communication.

When examining this question, so far as a lay observer is able to do, it is advisable to clear the ground by getting rid of some catch phrases which are apt to lead one astray. For instance, in the passage quoted above, the correspondent of *The Times* used the expression: "Blast the enemy out of the sky." He meant that this was to be done by a powerful bomber force. Bombers do not blast anything out of the sky; they blast it out of the ground or out of a factory or stores depot. Only fighters can blast an enemy out of the sky. The implication obviously was that by destroying enemy factories we might put an end to German air power.

It is a very big proposition. We may amass a bomber force much larger than anything the Germans can

WHICH ROAD TO VICTORY

muster, and then we shall be able to bomb Germany harder than she can bomb Britain, but that by itself will not defeat her or prevent her from sending bombers across the Channel and the North Sea. Her striking power in the air could only be crippled permanently by R.A.F. action if so large a proportion of her aircraft factories, oil stores, and other necessaries were destroyed by British bombs that she could no longer maintain her offensive. Considering the size of Germany and the manner in which she has distributed her factories and flying schools, the task of knocking out over 50 per cent. of them would be gigantic—and if it were accomplished, would even that be enough to ensure an Allied victory?

Defence a Necessity

There are other targets besides aircraft factories the destruction of which would be helpful. Before considering them, however, let us deal with another catchword. Nobody seriously denies the truth of the maxim "attack is the best form of defence," yet, like other proverbs, it can be so twisted as to become almost a deathtrap. Sometimes in the past years air authorities have argued on these lines: the fighter is a defensive weapon and the bomber is a weapon of attack; therefore let us concentrate on bombers and neglect fighters. This policy was reversed just in time to allow our fighters to win the Battle of Britain. If the defence of vital spots is neglected, a country may lose a war before it has a chance of attacking at all. In all land operations (except in Africa and Syria) British armies in this war have been short of fighter support and, largely for that reason, have suffered defeats. The Air Staff now says that nobody can ever have too many fighters. So, whatever our building strategy may be, we must always continue to build up our fighter forces. They may at least blast the enemy out of the air at a vital spot at a critical time, as they did, for all practical purposes, last summer.

While bombing German aircraft factories is a Herculean—one might almost say a Sisyphean—task, there are, of course, many other classes of target which can usefully be attacked. Oil has been mentioned. One of the most important is the U-boat bases. Heavy attacks on them can give material help towards defeating the Germans in the Battle of the Atlantic. But in that blockade battle Britain again is on the defensive, and though successful defence is essential it will not win the war. Another class of target is the factories which make tanks and other munitions for the German Army. Again we are faced with the question of whether we could hope to destroy so many that the German Army could no longer fight. To produce that effect we should have to destroy not only factories, but also stores depots and immediate reserves. An Army can fight for a considerable time without drawing on factories if its depots are full when the battle begins, and it may win.

. . . . . concentrate primarily on a formidable number of mechanised divisions.

When the Germans enter upon a campaign like the invasion of Russia, they must be prepared to use up and lose a lot of equipment, and before the frontier was crossed the ordnance department must have piled up immediate reserves of material and have filled up the stores depots as well, so that during the campaign (unless it proved of inordinate length) the armies should be independent of output from the factories. To disarm the German Army by bombing would again be a tremendous task.

Yet, unless either the German Army or the *Luftwaffe* can be deprived by bombing of the means of continuing to fight, it is hard to see how the Bomber Command of the R.A.F. can by itself win the war.

On the other hand, if Britain builds up a huge Air Force equipped and trained to work with her own Army, prospects of a decision begin to appear. This is not the place to make suggestions as to where the decisive battle might be fought, but it may be pointed out that the Axis has the longest coastline to defend that any belligerent has ever had, and that it does not command the surface of the seas. There are many possibilities in that situation.

Exponents of the bombing policy say that it is more profitable to destroy an aeroplane or a tank in its nest, than to shoot it to pieces in battle—but is that universally true? That argument leaves out of account the value of the crew, it disregards the tactical object on which the aircraft or tank was engaged at the time, and it forgets the discouraging effect of such a blow on the other troops engaged in the same fight. A tank or an aircraft in battle is worth much more than either is when in its factory or depot. What is of great profit is to cut the lines of communication behind a hostile army, so that munitions and rations cannot reach the fighting men at the moment when they most need them.

The Chance of a Smashing Victory

To do that is the work of bombers working with an army, not of an independent Air Force. And, where factory bombing may be inconclusive, we may take it as a certainty that a land victory as complete, *mutatis mutandis*, as Waterloo would mean the end of German aggression, of Prussian domination, and of all for which Hitler stands. If the British Army with its allies, supported by an overwhelming air arm, can bring the German land forces to battle, then the R.A.F. may well be able to do more to help in achieving our common object than it is reasonable to expect from independent air action.

Without doubt the Air Ministry and Air Staff will loyally co-operate in any plan upon which the War Cabinet decides as best calculated to give us victory, but they may grieve if the decision is for final victory by land. Airmen, both inside the R.A.F. and outside it, are sometimes swayed by a sentimental affection for the aeroplane. They have a counterpart in some retired cavalry officers who are breaking their hearts because their own regiments have been mechanised, and who sometimes talk as if they would sooner see the war lost on horseback than won behind an internal combustion engine. Horse and aircraft alike evoke an affection which goes beyond all reason, one being an old-established factor in war and the other among the newest weapons.

Air enthusiasts want to see the war won by the Bomber Command. They like to see that Command working independently and not in connection with the Army. They rejoice when they hear it said that a land force must be beaten unless it has air supremacy, but still more do they want to see the Bomber Command win without any help from the Army.

Where an opinion is dictated by sentiment and not by cool reason, it does not deserve much consideration. It is unscientific, and warfare is not only an art—it is also applied science.

Service Aviation

Royal Air Force and Fleet Air Arm News and Announcements

THE KING has been graciously pleased to approve the following awards in recognition of gallantry displayed in flying operations against the enemy:—

BAR TO THE DISTINGUISHED SERVICE ORDER.

Act. Wing Cdr. D. R. S. BADER, D.S.O., D.F.C.—This officer has led his wing on a series of consistently successful sorties over enemy territory during the past three months. His high qualities of leadership and courage have been an inspiration to all. Wing Cdr. Bader has destroyed 15 hostile aircraft.

BAR TO THE DISTINGUISHED FLYING CROSS.

Flt. Lt. G. L. RAPHAEL, D.F.C., R.A.F.O. No. 85 Squadron.—This officer has proved himself to be a relentless and skilful night fighter pilot. Since May, 1941, he has destroyed three and probably another of the enemy's aircraft.

Act. Flt. Lt. A. R. WRIGHT, D.F.C., No. 92 Squadron.—This officer has been continually engaged in operational flying since May, 1940. He has led his flight and sometimes his squadron with great skill and determination. Flt. Lt. Wright has destroyed at least nine enemy aircraft. On one occasion he flew his damaged aircraft back from France, making a successful landing despite extreme difficulties. His keenness and devotion to duty have been outstanding.

F/O. A. P. DOTTRIDGE, D.F.C., No. 219 Squadron.—This officer has proved himself to be an outstanding night fighter pilot as well as an efficient and courageous flight commander. He has destroyed at least two enemy aircraft at night.

DISTINGUISHED FLYING CROSS.

Wing Cdr. F. S. STAPLETON, No. 54 Squadron.—This officer has led his squadron on almost every operational flight during its recent activities over enemy territory, in which the squadron has destroyed at least twelve enemy aircraft. Two of these were destroyed by Wing Cdr. Stapleton himself. He has always displayed the utmost enthusiasm to seek out and destroy the enemy and has undoubtedly contributed materially to the successes obtained.

Act. Sqn. Ldr. K. HOLDEN, A.A.F., No. 610 Squadron.—This officer has consistently led his flight with skill and courage in action against the enemy. He has destroyed three and damaged a further four hostile aircraft.

Flt. Lt. L. G. BURNAND, R.A.F.O., No. 203 Squadron.—This officer has carried out numerous tactical and artillery reconnaissances in Egypt, Libya and Greece. Since December, 1940, he has flown alone on 62 of these missions over or well behind the enemy's lines, often subjected to intense fire from the ground defences. During the operations in Greece, his work was carried out under extremely difficult conditions. Flt. Lt. Burnand has displayed great skill and keenness which, combined with his untiring efforts, have contributed materially to the high standard of morale and efficiency of his flight.

Act. Flt. Lt. R. D. GRASSICK, No. 242 Squadron.—This officer has been a member of the squadron since its formation. He has displayed an indomitable spirit and has proved himself to be a first-class section leader. Flt. Lt. Grassick has destroyed at least six enemy aircraft.

F/O. E. F. J. CHARLES, No. 54 Squadron.—This officer has displayed exceptional zeal and immense enthusiasm during the many offensive sweeps carried out by his unit. He has destroyed at least three enemy aircraft.

F/O. T. D. WILLIAMS, A.A.F., No. 611 Squadron.—This officer has participated in numerous operational flights over the English Channel and over France, during which he has destroyed at least three enemy aircraft and damaged others. In June, 1941, he shot down a Messerschmitt 109 when it was attempting to attack one of our bombers which had been damaged by anti-aircraft fire. He then escorted the bomber, flying at sea level, until the English Coast was reached. F/O. Williams has displayed great keenness and courage and has set an excellent example.

Act. F/O. G. B. BLACKLOCK, D.F.M., No. 7 Squadron.—In June, 1941, this officer was the captain of an aircraft which participated in a daylight operation over Bremen. In the vicinity of the target area, nine enemy fighters attacked one of our aircraft. In the ensuing engagement, F/O. Blacklock skilfully manœuvred his aircraft and enabled his gunners to ward off many attacks during which they destroyed one and probably a further two of the attacking aircraft. Later, when one of our aircraft which had been severely damaged was forced to alight on the water, F/O. Blacklock, despite the absence of cloud cover, refused to leave the vicinity until it was evident that he could be of no further assistance. This officer has recently taken part in three daylight operations over enemy country. He has displayed excellent leadership, great courage and devotion to duty.

P/O. A. ASHWORTH, No. 75 (N.Z.) Squadron.—One night in June, 1941, this officer was the pilot of an aircraft which carried out an attack on the *Scharnhorst* at Brest. Although the target was obscured, P/O. Ashworth flew over the area for a considerable time, finally dropping flares immediately north and south of the target, which enabled him to see and attack his objective. He also aimed one bomb at an unidentified vessel of 10,000 tons which was observed to be entering the docks. This operation necessitated P/O. Ashworth remaining over the area for one and a quarter hours, making eight surveying runs, at times at an extremely low altitude and in the face of intense anti-aircraft fire. Since February, 1941, this officer has participated in twenty operational missions. He has displayed outstanding skill, courage and infinite care in his efforts to bomb his objectives accurately.

P/O. T. S. WADE, R.A.F.V.R., No. 92 Squadron.—This officer has displayed great skill and determination in his numerous engagements against the enemy and has destroyed at least six of their aircraft. His efforts have contributed materially to the successes achieved by the squadron.

P/O. F. G. WOOLLEY, R.A.F.V.R., No. 244 Squadron.—In May, 1941, one of our aircraft crashed during an attack on an armoured train in enemy territory. In spite of difficult ground, P/O. Woolley landed his aircraft beside the wreckage and picked up the injured pilot and airman. Enemy forces, who had detrained, came towards his aircraft, but P/O. Woolley took off over the bad ground with the injured crew and flew safely back to his base. By his prompt and gallant action P/O. Woolley undoubtedly prevented these airmen from falling into the hands of the enemy and enabled the pilot to receive the medical attention he so urgently needed.

F/O. M. K. SEWELL, No. 70 Squadron.—One night in June, 1941, this officer carried out a flight for the purpose of dropping essential provisions to personnel in Crete. Extremely adverse weather conditions prevailed over the area, but finally, in response to an S.O.S. which was flashed from the ground, F/O. Sewell descended to 1,000 feet in an attempt to drop the provisions. He was unable to do this at the first attempt as the wind, which had risen to gale force, was blowing his aircraft at a line of cliffs. Nevertheless, F/O. Sewell succeeded in dropping over 300 lbs. of provisions at the second attempt.

He then patrolled the coast in an effort to pick up further signs of signals. Returning to his original objective F/O. Sewell, again observing an S.O.S. light, descended to 900 feet and dropped further stores along the beach. He then flew to the hills north of the beaches and dropped 16 sacks weighing 60 lbs. each. Altogether F/O. Sewell made 14 runs over his objective in an effort to ensure success. He displayed great flying skill, courage and determination.

F/O. A. WATSON, No. 203 Squadron.—In May, 1941, this officer was the pilot of one of two aircraft which carried out an attack on the fort at Ruthah and enemy ground forces in the neighbourhood. Both aircraft made determined attacks on the fort in the face of heavy fire from the ground which was eventually silenced.

Following an attack by his fellow pilot on some armed forces behind a hill, F/O. Watson's attention was drawn to a column of black smoke on the ground. Although his aircraft had been hit in the petrol tank and fuselage, he immediately dived towards the position and a moment later saw his fellow pilot, who had apparently been shot down, emerge from the smoke. Turning into wind and without waiting to apply the flaps F/O. Watson landed his aircraft less than 20 yards from the burning wreckage and, together with his air gunner and observer, rescued his comrade.

In spite of fire from enemy armoured cars and bullets exploding from the burning aircraft they attempted to find the remaining members of the crew. Failing to find any sign of them they returned and took off with the rescued pilot. Throughout, F/O. Watson displayed great courage and skill as both landing and take-off were made

RETRIBUTION IN TRANSIT: A Bomber Command Vickers Wellington on its way to Germany.

Act. Wing Cdr. D. R. S. Bader, now awarded a bar to the D.S.O., has 15 Huns to his credit.

SERVICE AVIATION

under fire and on ground strewn with rocks and boulders.

Act. F/O. J. W. MURRAY, D.F.M., R.A.F.V.R., No. 35 Squadron.—One night in June, 1941, F/O. Murray and Sgt. Martin were the captain and rear gunner respectively of an aircraft detailed to carry out a bombing mission over Hanover. On the outward journey the aircraft was suddenly engaged by an enemy fighter, which opened fire with cannon and machine guns, causing severe damage to the aircraft and the rear gun turret. Nevertheless Sgt. Martin, who was wounded in the head and arm, continued to engage the enemy, finally causing him to break off the attack. The aircraft was last observed diving steeply away. With great skill, F/O. Murray flew his severely damaged aircraft back to this country, after dropping his bombs on an enemy objective, making a successful landing at an aerodrome without injury to the crew. F/O. Murray displayed great airmanship, while Sgt. Martin showed great fortitude in very difficult circumstances.

DISTINGUISHED FLYING MEDAL.

Sgt. L. MARTIN, No. 35 Squadron.—For citation see F/O. Murray, above.

Sgt. N. BARON, R.A.F.V.R., No. 139 Squadron; Sgt. R. W. ULLMER, R.A.F.V.R., No. 139 Squadron.—In May, 1941, Sgt. Baron and Sgt. Ullmer, as pilot and wireless operator-air gunner respectively, took part in an attack against a 6,000-ton enemy merchant vessel. Three direct hits were obtained, and it was subsequently learned that the ship had been abandoned. A few days later, following a report that drifters were taking off the cargo, they again bombed the ship, obtaining direct hits which caused smoke to be emitted.

In June, 1941, Sgts. Baron and Ullmer participated in an attack on a large and strongly escorted convoy. The particular section attacked consisted of six merchant vessels and six destroyers. Bombs from one of the leading aircraft struck two of the ships, one of which was an ammunition ship, which blew up with terrific force, and the aircraft in which Sgt. Baron and Sgt. Ullmer were flying was severely damaged by the blast. Despite the wrecking of his turret, Sgt. Ullmer secured excellent photographs of the damage caused to the convoy, and Sgt. Baron succeeded in flying the damaged aircraft back to base. Both airmen have consistently displayed great keenness, courage and determination.

Roll of Honour

THE Air Ministry regrets to announce the following casualties on various dates. The next-of-kin have been informed.

KILLED IN ACTION (WHILE FLYING IN OPERATIONS AGAINST THE ENEMY).—Sgt. D. Bell; L.A/C. L. J. Blackhall; Sgt. J. G. T. Dickson; Sgt. R. Greenaway; P/O. B. A. Grosvenor; F/O. K. M. Laird; Sgt. R. MacPherson; Sgt. J. R. Miller; Sgt. D. D. Milroy; Sgt. P. B. Murray; Sgt. J. J. E. M. O'Donnell; Cpl. F. G. F. Perry; Sgt. W. M. Roberts; Sgt. S. P. C. Saunders; Sgt. R. Shaw; P/O. J. A. F. Sowrey; Sgt. D. T. Taylor; Sgt. L. J. G. Wakefield; Sqn. Ldr. D. Walker, D.F.C.; F/O. P. H. Watts; P/O. C. L. H. Werner.

PREVIOUSLY REPORTED MISSING BELIEVED KILLED IN ACTION, NOW PRESUMED KILLED IN ACTION.—Sgt. E. P. Chapman; Sgt. B. J. Fox; Sgt. E. H. Goodall; Sgt. V. Hallas; Sgt. W. C. Hamilton; Sgt. A. C. Jupp; Act. Flt. Lt. F. H. Long, D.F.C.; Sgt. E. F. Matthews; Sgt. W. E. Osterfield; Act. Flt. Lt. V. F. B. Pike, D.F.C.; Sgt. H. Sharpley; F/O. M. S. Singleton; Sgt. G. P. C. Smith; Sgt. C. Summer; Sqn. Ldr. A. M. Watts-Read; Sgt. A. J. Whitby.

PREVIOUSLY REPORTED MISSING, NOW PRESUMED KILLED IN ACTION.—Sgt. T. E. Ashurst; P/O. M. M. Barbour; Sgt. E. F. Battle; P/O. W. Beaumont; Sgt. B. L. Bembridge; Sgt. R. G. Bennett; A/C.1 W. H. Blackmore; Sgt. J. A. Bowler; Flt. Sgt. R. B. Broadhurst; Sgt. F. T. Buckingham; Sgt. A. J. Burns; Sgt. P. T. Catto; A/C.1 L. J. Caunter; Sgt. R. Collier; Sgt. F. A. Colson; Sgt. A. Cowling; Flt. Lt. R. N. Cullen; F/O. D. A. Dadswell; Sgt. M. H. Davies; Sgt. W. R. A. Dick; Sgt. R. G. Fitzgerald; Sgt. J. L. Franco; Sgt. J. Gibbs; Sgt. W. J. Gilmour; Sgt. R. W. Grace; Sqn. Ldr. C. W. Grannum; Sgt. J. E. Greenwood; Sgt. S. G. Greeves; Sgt. J. C. Hall; Sgt. E. Harrold; Sgt. G. A. Hinton; Sgt. W. G. Hitchmough; Sgt. B. T. Hopkins; Sgt. G. D. Hutchings; P/O. G. H. F. Innis; Sgt. W. H. James; L/A.C. W. T. James; P/O. K. W. Jerwood; A/C.1 D. H. Jones; Sgt. G. W. H. Kendall; Sgt. J. A. Kerr; P/O. N. A. Knight; P/O. J. G. Langford; Sgt. E. C. Lee; Sgt. W. Livesey; Sgt. J. C. Macaskie; Sgt. A. Marsden; P/O. R. G. G. M. Marsden; P/O. R. E. Maurer; Sgt. A. R. Merry; Act. Sqn. Ldr. J. A. F. Mertens; Sgt. R. F. Murray; Sgt. R. J. Neale; P/O. E. R. Osborn; Sgt. E. F. Parish; Sgt. C. D. Powrie; Sgt. C. P. Riley; Sgt. R. D. Ross; Sgt. D. Rowley; Sgt. C. E. Russell; Sgt. E. B. Ryles; Flt. Sgt. A. F. Scragg; Sgt. R. Sinclair; Sgt. R. W. Spiller; A/C.2 L. E. Stokes; Flt. Sgt. F. Swatton; F/O. W. K. B. Thomas; P/O. L. R. de M. Thompson; Sgt. R. C. Trowbridge; Sgt. R. N. Wain; P/O. G. E. Walker; Sgt. G. E. West; Sgt. R. W. B. White; Sgt. C. Whitfield; Sgt. L. Young.

PREVIOUSLY REPORTED MISSING BELIEVED KILLED ON ACTIVE SERVICE, NOW REPORTED KILLED IN ACTION.—Flt. Lt. W. O. L. Smith; P/O. D. M. Vine.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED IN ACTION.—Sgt. H. Burton; P/O. L. E. H. Cooper; P/O. R. J. Tearle.

WOUNDED OR INJURED IN ACTION.—P/O. W. A. Douglas; Sgt. J. Fosbrook; P/O. O. V. Hanbury; Sgt. B. W. Marshall; P/O. F. A. Montford; P/O. R. T. Saunders; Sgt. A. C. Shilleto; Sqn. Ldr. I. J. Spencer; Sgt. C. Turl; Sgt. F. J. Twitchett; P/O. T. S. Wade; Act. Flt. Lt. T. J. Watkins; Sgt. P. Winter; Sgt. R. L. Yorke; Sgt. H. Young.

DIED OF WOUNDS OR INJURIES RECEIVED IN ACTION.—Sgt. G. S. Aikenhead; Sgt. J. White, D.F.M.

PREVIOUSLY REPORTED WOUNDED OR INJURED IN ACTION, NOW REPORTED DIED OF WOUNDS OR INJURIES RECEIVED IN ACTION.—Sgt. J. Brown, D.F.M.

MISSING, BELIEVED KILLED IN ACTION.—F/O. S. V. Alderton; Sgt. J. L. Angell; Wing Cdr. R. G. O. Arnold; Sgt. C. T. F. Baldwin; Sgt. T. C. E. Berkeley; Sgt. R. S. Bunce; Sgt. R. Carr; Sgt. A. Cooke; Sgt. A. T. Copley; Sgt. I. T. C. Edwards; Sgt. A. C. Fletcher; Sgt. J. R. Fraser; Sgt. K. P. Glassborow; Sgt. L. V. Goode; Sgt. A. Gregory; Sgt. J. N. Harrison; Sgt. S. N. Harvey; Sgt. D. A. Humphrey; Sgt. I. P. Hunter; Sgt. T. E. Hyde; F/O. D. F. Lamb, D.F.C.; P/O. T. P. Lynch; Sgt. L. R. MacDonald; Sgt. W. F. MacGregor; Sgt. D. J. Mansfield; Sgt. R. T. Martin; Sgt. C. J. Partington; Act. Wing Cdr. N. E. W. Pepper, D.F.C.; Sgt. L. Pickford; P/O. G. H. S. Pullen; Sgt. L. N. Rowbotham; P/O. G. A. Tovey.

MISSING.—A/C.1 K. G. Abbott; A/C.2 F. Addison; P/O. E. K. Aires; A/C.2 R. W. Andrews; Flt. Sgt. J. F. Armitage; Sgt. E. W. Ashwood; Flt. Lt. F. H. Babcock; Sgt. H. Bailey; P/O. F. Baldwin;

Sqn. Ldr. R. S. Tuck who now has a second bar to his D.F.C.

Sgt. J. A. Barron; P/O. W. Baser; Cpl. L. W. Bayes; Sgt. J. Beattie; A/C.1 T. L. Beaven; Sgt. R. J. Bennett; Sgt. M. V. Berry; L.A/C. H. F. Betts; L.A/C. W. A. J. Boag; Cpl. A. W. Bond; P/O. R. J. E. Boulding; Cpl. W. J. Brooks; Sgt. W. H. Browell; P/O. E. P. S. Brown; L.A/C. H. Brown; P/O. A. D. Browne; P/O. R. J. Burleigh; F/O. A. R. Butcher; Sgt. N. E. Byres; Cpl. T. Cantwell; Sgt. J. T. Carmichael; Flt. Sgt. H. W. Carter; L.A/C. C. Carter-Derbyshire; P/O. L. S. Clayton; A/C.2 J. Cookson; A/C.2 J. E. Craig; Sgt. R. A. Cross; P/O. P. K. Crowther; F/O. T. H. Cullen; Act. Flt. Lt. J. Curchin, D.F.C.; P/O. S. H. Dale; A/C.1 A. G. Davies; Sgt. A. R. Dawson; Sgt. A. W. Dean; Sgt. F. H. Dean; Sgt. T. Dean; Cpl. E. A. Dear; A/C.1 R. E. Deards; F/O. C. N. Dilly; Cpl. T. F. Donohoe; A/C.1 J. Duff; P/O. R. D. Dunscombe; A/C.1 I. P. Evans; Sgt. R. Fawcett; Cpl. D. Findlay; W/O. F. Firman; Sgt. K. P. T. M. Fletcher; Sgt. W. A. J. Fretwell; Flt. Lt. C. H. Fry; Cpl. A. F. Fudge; Sgt. F. Garbutt; A/C.2 P. Geiringer; P/O. A. F. George; Sgt. A. Gosden; Act. Flt. Lt. R. A. Green; L.A/C. F. D. Greenhalgh; Act. Flt. Lt. D. G. Gribble; A/C.2 S. Griffith; Cpl. W. Griffiths; F/O. T. W. Gudgeon; Cpl. F. E. Gulley; Sgt. R. F. Hall; Sgt. W. G. Halliday; F/O. J. L. Halstead; Sgt. T. E. Hampson; A/C.2 A. J. Harding; P/O. R. J. Heavens; P/O. E. Hewson; Sgt. A. E. Hibbin; Sgt. H. E. Hill; Sgt. J. Hine; A/C.1 S. G. Hogg; Sgt. E. Hollinghurst; Sgt. E. L. Holmes; Flt. Lt. C. R. C. Howlett; Sgt. M. Hoyes; L.A/C. W. Hoyle; A/C.1 W. H. Hudson; Sgt. A. Hunter; Sgt. H. T. Ivory; Sgt. A. Jackson; L/A.C. E. P. Jonas; Sgt. E. Johns; Sgt. G. A. Kaye; A/C.2 J. J. King; P/O. T. D. Kerr; Sgt. F. S. B. Knox; P/O. D. S. W. Lake; A/C.1 B. Lewis; P/O. T. Livingstone; A/C.1 H. W. Longbottom; A/C. W. H. Lumsden; Sgt. W. C. McCorkell; Sgt. W. J. S. McGregor; Sgt. S. W. McIntyre; L/A.C. A. Mair; Sgt. G. Mason; Flt. Lt. P. Mason; Sgt. C. F. Matthews; Cpl. F. Matthews; Sgt. W. R. Meaker; A/C.1 F. Miller; Sgt. R. D. Mills; Cpl. H. Mitchell; Sgt. J. Money; L.A/C. A. E. Moore; Sgt. J. A. Mortimer; P/O. C. A. Newman; Sgt. J. D. Norris; A/C.1 J. H. Nutt; A/C.2 L. F. Paddock; Cpl. C. Penneyston; P/O. V. E. G. Phillips; Sgt. E. W. Pickering; F/O. P. S. C. Pollard; Sgt. W. G. Price; A/C.2 A. H. Pritty; P/O. G. A. Prosser; A/C.1 A. R. Pryer; Sgt. R. C. Rae; Sgt. J. A. S. Reid; P/O. H. G. Reynolds; Sgt. G. W. Richards; Sgt. D. E. Richardson; A/C.2 J. Riley; F/O. F. G. Roberts; Sgt. M. G. Robertson; A/C.1 R. Rogers; Cpl. A. C. Russell; A/C.2 B. Scales; A/C.2 F. R. Skan; Sgt. J. L. Smith; A/C.1 R. A. Smith; A/C.2 P. Smithson; Sgt. E. W. Sponder; P/O. C. F. Starkey; Sgt. M. R. Stephens; L.A/C. A. Stewart; Sgt. D. R. Stickland; Sgt. A. J. Stiddard; L.A/C. K. J. Stone; Sgt. P. R. Sutton; A/C.2 C. Taylor; Sgt. J. Till; A/C.1 D. Thompson; Sgt. C. R. Triggs; A/C.2 G. W. Trollope; P/O. P. J. Valachos, D.F.C.; P/O. P. P. Villa; L.A/C. E. W. Walker; Sgt. N. MacD. Walker; A/C.1 F. Walkingshaw; L.A/C. C. J. Wallace; L.A/C. O. B. K. Walter; P/O. I. A. Watson; Cpl. H. G. Whitehurst; A/C.1 B. J. Williams; Cpl. F. Worthington; Cpl. H. Wrigley; A/C.1 T. C. Yeomans; A/C.1 A. Zelbard.

PREVIOUSLY REPORTED PRISONER OF WAR, NOW REPORTED MISSING.—Sgt. F. J. Percival.

MISSING, BELIEVED KILLED ON ACTIVE SERVICE (WHILE ENGAGED ON NON-OPERATIONAL FLYING DUTIES OR ON THE GROUND THROUGH ENEMY ACTION).—A/C.1 J. A. Darragh; Sgt. W. R. Everett; Sgt. K. Garrett; Sgt. H. A. Hopkins; Sgt. C. G. J. McIver; Sgt. P. T. Persins; A/C.1 A. E. Pocknell; F/O. A. K. Round; A/C.1 H. J. Tabern; Sgt. H. J. Talbot; Sgt. K. J. Whatcoat; P/O. J. C. Yates.

KILLED ON ACTIVE SERVICE.—F/O. A. G. Allen; A/C.2 A. E. Bacon; P/O. G. B. Bainbridge; Sgt. K. O. Bate; Sgt. I. M. Begbie; Sgt. G. E. Blair; Sgt. W. Bennett; P/O. A. B. Brown; Sgt. R. Brown; F/O. W. E. Cater; Sgt. W. R. L. Collyer; P/O. A. A. Cooke; Sgt. R. G. Cossgrave; A/C.2 J. P. Daley; Sgt. L. Dent; Sgt. V. S. Dodd; Sgt. J. E. G. Dovey; A/C.1 G. I. Eggleton; Cpl. C. F. Eva; P/O. A. Y. Evans; Sgt. D. E. Fletcher; P/O. A. Gibbons; Sgt. H. F. H. Gigney; A/C.1 A. A. Grant; P/O. C. R. Greenhill; Sgt. T. A. Grosvenor; A/C.1 E. B. Hay; P/O. K. J. Holmes, D.F.C.; Sgt. J. E. Jackson; Sgt. D. Jones; Sgt. E. H. W. Kemp; Sgt. J. W. Kenner; Sgt. R. D. Kirby; Sgt. A. P. Kitcherside; P/O. E. G. Kitching; A/C.2 H. Lackey; A/C.1 S. M. Lawrence; Sgt. A. F. Leach; Sgt. W. H. Lewis; P/O. G. E. McArthur; Sgt. N. McLafferty; A/C.2 W. C. Mahier; Sgt. J. F. Markham; A/C.2 S. Mawr; Sgt. J. M. Milne; A/C.1 K. H. Moody; Sgt. E. T. Naylor; L.A/C. W. Neill; Sgt. A. W. Oates; Sgt. W. D. Oswald; L.A/C. H. E. Read; P/O. F. Rendall; Sgt. A. E. Stephens; Sgt. J. C. Stewart; P/O. R. S. C. N. St. John-Spencer; Flt. Lt. G. T. Swann; L.A/C. W. Tamsley; Sgt. J. M. Taylor; Sgt. W. D. Weir; Flt. Lt. T. E. Wesson; A/C.1 C. G. Wills; Sgt. J. Wilson; A/C.1 J. V. Woolnough.

PREVIOUSLY REPORTED MISSING BELIEVED KILLED ON ACTIVE SERVICE, NOW PRESUMED KILLED ON ACTIVE SERVICE.—Act. Cpl. M. A. Barringer; A/C.1 I. L. Davies; L.A/C. A. Glover.

PREVIOUSLY REPORTED MISSING BELIEVED KILLED IN ACTION, NOW PRESUMED KILLED ON ACTIVE SERVICE.—Sgt. J. D. Hutchinson.

PREVIOUSLY REPORTED MISSING, NOW PRESUMED KILLED ON ACTIVE SERVICE.—A/C.1 D. Barnes; A/C.1 T. E. Corrigan; Sgt. A. S. Dunleavy; Sgt. E. T. Farmes; Sgt. G. Palmer.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED ON ACTIVE SERVICE.—Sgt. L. Francis; P/O. P. L. V. Hutt; Flt. Lt. A. H. Ross.

WOUNDED OR INJURED ON ACTIVE SERVICE.—Sgt. J. L. Alden; Flt. Lt. W. J. Alington; Sgt. J. W. Arnott; A/C.2 K. S. Felthouse; A/C.2 A. J. Gosney; A/C.1 R. H. Gray; L.A/C. D. R. Hale; P/O. J. J. de Ledesma; Flt. Sgt. R. Lilley; Sgt. D. W. Poole; Sgt. G. P. Rake; L.A/C. J. V. Roper; Sgt. L. Syrett; A/C.2 H. Topping; Sgt. C. Townend; A/C.1 K. S. Wiseman.

DIED OF WOUNDS OR INJURIES RECEIVED ON ACTIVE SERVICE.—Wing Cdr. R. C. Hancock; Col. G. Kerr; A/C.1 D. MacDonell; Flt. Sgt. W. Powell; Sgt. A. R. G. Williams; Sgt. A. J. Young.

DIED ON ACTIVE SERVICE.—L.A/C. J. W. Ashley; F/O. N. H. Bantoft; A/C.1 H. W. Beckett; A/C.2 W. A. Bowker; A/C.1 L. A. Bromage; W/O. J. Burke; Cpl. E. L. Crewe; L.A/C. A. S. Davis; A/C.2 B. D. Gold; A/C.2 H. S. Grist; L.A/C. T. A. Harbottle; L.A/C. K. Harding; A/C.1 T. Jones; L.A/C. S. T. Livingstone; A/C.2 R. M. Maconochie; A/C.2 C. C. E. Rogers; A/C.2 T. Rennie; A/C.1 J. H. Rudkin; L.A/C. F. F. Rushton; A/C.2 F. J. Thomas; L.A/C. L. Wood.

PREVIOUSLY REPORTED MISSING, NOW REPORTED PRISONER OF WAR.—Sgt. J. A. Collett; Sgt. T. R. H. Hawkes; Sgt. A. Morris.

Royal Australian Air Force

MISSING.—P/O. W. W. Anderson; P/O. S. M. Dunn.

Royal Canadian Air Force

KILLED IN ACTION.—Sgt. G. A. Chestnut; P/O. N. D. Maclennan.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED IN ACTION.—Sgt. J. H. Smith.

MISSING, BELIEVED KILLED IN ACTION.—Sgt. W. B. Smith.

KILLED ON ACTIVE SERVICE.—Sgt. R. O. Docking; Sgt. D. F. Henderson.

Royal New Zealand Air Force

PREVIOUSLY REPORTED MISSING, NOW PRESUMED KILLED IN ACTION.—Sgt. L. D. Anderson; Sgt. J. B. Philpott; Sgt. A. H. Ritchie.

SERVICE AVIATION

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED IN ACTION.—P/O. R. M. Morrow.

MISSING, BELIEVED KILLED IN ACTION.—Sgt. R. J. Bullen; P/O. R. G. Eccles; Act. Flt. Lt. N. Williams, D.F.C.

MISSING.—P/O. W. T. Everist; P/O. S. C. Parkes; P/O. W. J. Sandman; Sgt. A. W. Simpson.

KILLED ON ACTIVE SERVICE.—Sgt. Pilot K. D. Cox.

South African Air Force

MISSING.—Lt. S. R. E. Forrester.

KILLED ON ACTIVE SERVICE.—L.A/C. T. E. Serfontmin.

London Gazette: Royal Air Force

Air Ministry,
July 11, 1941.

General Duties Branch.

Grp. Capt. B. E. Embry, D.S.O., A.F.C., is appointed an Air A.-de-C. to the King, vice Air Vice-Marshal H. P. Lloyd, M.C., D.F.C. (June 1).

The folg. are granted comms. for durn. as P/Os. on probn.:—Temp. W/O.: (Mar. 1) J. E. Morrison. Temp. Flt. Sgt.: (May 22) C. D. Owen. Sgts.: (Mar. 14) H. J. Talbot; (May 8) J. G. McCathie; (May 17) D. Boyd-Stevenson, A. Cowie, D.F.M., J. Graney; (June 10th) G. K. Muirhead, D.F.M., A. A. B. Cleaver; (June 15) J. A. Dewhirst; (June 19th) A. Cody, D.F.M. Temp. Sgt.: (Mar. 1) E. F. Tessier.

Act. P/O on probn. C. A. G. Ferguson is confmd. in his appt. and graded as P/O (May 6, 1941. Sen. Oct. 12, 1940).

The folg. P/Os. on probn. are confmd. in their appts. and promoted to war substve. rank of F/O.:—(Apr. 1) W. A. L. Johnson, G. Kennedy, D.F.M., R. J. Raphael, A. P. Walsh, D.F.C.; (May 1) R. A. Greenhill; (June 22) A. L. Law.

The folg. F/Os are promoted to war substve. rank of Flt. Lt.:—(Sept. 3, 1940) C. S. Thomas; (May 25) A. D. J. Lovell, D.F.C.; (June 27, 1941. Sen. June 27, 1940) J. W. W. Hurndall, D.F.C. (Lt., 14th/20th H.), Hon. D. W. C. Keppel (Lt., 13th/18th H.); (June 27) J. R. J. Rail.

The folg. P/Os. are promoted to war substve. rank of F/O. (Apr. 20):—J. E. H. Marshall, P. A. W. Thomas.

P/O. H. T. Gilbert, D.F.C., is promoted to war substve. rank of F/O. (Apr. 20) (Substd. for notifn. of June 27).

The folg. are transfd. to Technical Branch (Apr. 14, 1940):—Grp. Capt.: H. G. White. Sqn. Ldr.: W. Gill.

P/O. on probn. F. Hartnell is transfd. to Administrative and Special Duties Branch (June 25th).

P/O. T. R. Goodbody takes rank and precedence as if his appt. as F/O. bore date May 1. Reduction to take effect from May 1.

Air Marshal Sir W. G. S. Mitchell, K.C.B., C.B.E., D.S.O., M.C., A.F.C., is placed on retired list (July 1).

The comms. of P/O. on probn. K. R. Rogers is terminated on cessation of duty (June 19).

Technical Branch.

The folg. are granted comms. for durn. as P/Os on probn.:—W/Os.: (May 12) R. E. Kimber; (June 12) J. Healey. Act. W/Os.: (May 13) W. J. Green. Flt. Sgts.: (May 14th) E. A. Harrop; (June 12th) R. A. Harpum.

P/O. on probn. A. S. Blake, A.F.M., is confmd. in his appt. and promoted to war substve. rank of F/O. (June 1).

The folg. Act. P/Os. on probn. are graded as P/Os. on probn.:—(Mar. 26) J. J. Dennis, R. H. C. Sampson; (May 7) W. E. Bloomfield; (May 9) K. F. Batt, W. R. Bray, W. H. Cox, D. E. Gibbs, F. A. Harris, A. H. Lodge, F. W. Morris, R. F. Nice, L. G. Raspison, H. J. Roberts, G. Robson, W. J. Scholes, E. F. C. Worthy, P. C. Wright, M. G. Hunn, J. A. Nicholls, G. J. Pearn, I. M. Ritchings, L. C. Sykes, E. S. Williams.

Sqn. Ldr. W. Gill is promoted to rank of Wing Cdr. (temp.) (Dec. 1, 1940).

P/O. on probn. R. J. Marks is promoted to war substve. rank of F/O. on probn. (July 1).

Administrative and Special Duties Branch.

The folg. are granted comms. for durn. as P/Os. on probn.:—W/Os.: (June 9) B. L. Croucher, (June 13) H. D. Wallace; (June 15) T. F. Forde; (June 16) F. L. Furlong; (June 17) J. S. Brazier. As P/O. on probn.:—W/O.: (June 23) H. E. J. B. Northcott. As Act. P/Os on probn.:—Flt. Sgt.: (June 9) H. Taylor. Cpl.: (June 20) B. Wilkinson.

The folg. P/Os. on probn. are promoted to war substve. rank of F/O. on probn. (May 15):—S. C. Baker, P. A. Lloyd-Fitt, M.M., H. Wright.

The folg. P/Os. are granted war substve. rank of F/O.:—(May 4) C. E. Beer; (May 15) F. C. Clarke.

Equipment Branch.

Act. P/O. on probn. G. I. Mason is graded as P/O. on probn. (Feb. 1).

The folg. P/Os on probn. are promoted to war substve. rank of F/O. on probn. (June 1):—A. W. I. Mosdell, W. W. Howe.

Erratum.

The notifn. of May 9 concerning P/O. on probn. H. W. Taylor should have appeared under heading "R.A.F." and not "R.A.F.V.R."

Accountant Branch.

The folg. are granted comms. for durn. as P/O. on probn.:—(June 20) W. A. Blythe. As Act. P/O. on probn.:—Flt. Sgts.: H. C. Evans, F. R. Oxley. Sgt.: E. R. S. Fendick.

P/O. on probn. J. W. Holmes is confmd. in his appt. and promoted to war substve. rank of F/O. (June 19).

The folg. F/Os are granted war substve. rank of Flt. Lt.:—(May 4) W. J. Tuite; (May 21) A. H. Bruce.

Medical Branch.

The folg. F/Os. (Medical Qms.) are promoted to war substve. rank of Flt. Lt. (Dec. 30, 1940):—J. P. D. Agate, L. H. Bagley.

Royal Air Force Reserve

RESERVE OF AIR FORCE OFFICERS.

General Duties Branch.

The folg. F/Os. are promoted to war substve. rank of Flt. Lt.:—(May 4) B. J. Apthorpe Webb; (June 13) J. E. Jurdon; (June 14) D. H. G. Tollemache.

Flt. Lt. L. S. Potter is transfd. to General Duties Branch (June 16).

Flt. Lt. G. E. F. Singleton is transfd. to Administrative and Special Duties Branch (June 21).

Sqn. Ldr. D. Dickson resigns his commn. (June 22).

Royal Air Force Volunteer Reserve

General Duties Branch.

The folg. are granted comms. for durn. as F/O:—(May 27) R. Quick. As P/Os. on probn.:—Sgts.: (Mar. 16) S. G. Turner; (Apr. 25) C. C. Dickson, K. M. Simpson, J. F. Laurie-Dickson; (May 14) H. B. Hunt; (May 17) W. M. Skinner, D.F.M.; (May 27) E. F. Bonner; (May 29) A. T. Bottomley, C. H. L. May, T. E. Hampson; (June 10) A. W. Wilkinson, G. R. Henderson, R. T. Holmes. K. D. Thornton-Hall; (June 12) A. P. Jones, R. C. Smylie. L.A/C.: (Nov. 6, 1940) A. D. Jillings; (Feb. 10) M. R. M. Poole; (Mar. 29) P. Shelley; (Apr. 2) H. S. Law; (Apr. 20) H. J. Daniels, L. J. P. Foster, C. D. Roberts, S. R. Whipple; (May 9) J. P. Trench; (May 11) A. W. Tomlinson, A. J. Hibell, E. R. Jones, M. M. Khan, A. C. L. Mackie, P. K. W. Patrick; (May 15) F. G. M. Calvert; (May 17) T. J. Anstead, J. C. Boyers, R. Le M. Cox, A. B. Greig; (May 18) S. Goulston; (May 25) W. McD. Souter, R. N. Barrier, W. C. Chadwick, M. Murphy, C. J. Rowley, A. G. Stanes; (June 1) G. Gilpin, R. M. Hill, B. B. H. Best, J. A. Donson; (June 8) G. A. W. Brandreth, E. J. Bull, L. Clarke, S. T. Farrington, A. W. Genth, T. F. McCrorie, M. C. Rose, J. C. Greenfield, R. Martin, A. A. Webb, B. Wykes; (June 9) R. G. Gardner; (June 12) C. F. Callender, H. D. C. Henderson, G. M. Sellar, W. B. Towler, E. B. Jones; (June 14) J. Beard, G. Burton; (June 15) K. V. Daniell, A. K. C. Holder, H. W. Horsley, G. M. Howes, J. Markham, E. Sellix, G. M. Smith; (June 17) M. F. Carson, J. N. Cockroft, J. D. Crombie, G. E. Cryer, H. B. Martin, C. G. Moore, R. N. Rayne, J. A. Robson, R. Van Ingen, R. T. Waite, K. B. Willson, F. W. Woodstock, A. Baerlein, D. J. Brown, N. Buchanan, H. B. Carroll, T. N. Cooper, P. Dawson, M. E. S. Dickenson, A. B. R. Dow, D. A. Grant; (June 18) D. G. Griffiths; (June 19) J. D. Anderson, J. F. Beadle, E. M. Bury, M. F. Doble, C. G. Gilmore, L. M. Mason, D. S. Parker, B. H. Williams. As Act. P/Os. on probn.:—(Feb 14) G. E. R. Lock; (May 23) H. J. Shaw Kennedy.

R. J. Jennings is granted a comm. for durn. as Act. P/O. on probn. (July 6, 1940) (Substd. for notifn. of June 27).

The folg. P/Os. on probn. are confmd. in their appts. and promoted to war substve. rank of F/O.:—(June 2) D. G. Martin; (June 17) G. B. Shields; (June 29) C. C. Johnston, J. A. S. Russell, D.F.C., A. G. Wallis.

P/O. on probn. C. H. Kippen is confmd. in his appt. (Feb. 10) and promoted to war substve. rank of F/O. (Apr. 16).

The folg. P/Os. on probn. are confmd. in their appts. (Mar. 8) and promoted to war substve. rank of F/O. (Apr. 22):—J. D. Coxwell, S. W. Webster.

F/O. C. W. W. Cooper relinquishes his commn. on account of ill health (July 7).

The comm. of F/O. on probn. J. E. Smith is terminated on cessation of duty (June 25).

Errata.

In notifn. of June 27 concerning Act. P/O on probn. F. W. Bailey *for* Feb. 17, 1940, *read* Feb. 17. 1941.

In notifn. of June 27 concerning P/O. on probn. R. J. Hiller, *for* Hiller *read* Miller.

Technical Branch.

The folg. are granted comms. for durn. as Act. P/Os. on probn.:—(May 5) G. R. Paddock; (May 10) R. J. C. Willey; (June 12) W. W. Abson, W. A. Brown, G. B. Buchan, L. H. Cody, R. W. Dennis, W. D. H. Gregson, H. R. Hoy, W. K. Napier, N. S. Sellers, R. C. Smith, F. E. Sperring, P. L. Waters.

The folg. P/Os. on probn. are confmd. in their appts. and promoted to war substve. rank of F/O.:—(May 27) J. Bamford; (May 31) T. S. Smith; (June 7) H. G. Henderson; (June 14) E. C. Brown; (June 21) I. W. Hancock, R. J. Lewis.

The folg. Act. P/Os. on probn. are graded as P/Os. on probn.:—(Mar. 30) A. McWatt Green; (May 9) B. D. F. Austen, N. R. Parry, G. A. G. Saywell.

The folg. F/Os. are granted war substve. rank of Flt. Lt.:—(Sept. 10, 1940) H. R. P. Patterson; (May 28) E. W. Braendle.

The folg. P/Os. are granted war substve. rank of F/O.:—(Dec. 10, 1940) F. R. Povey; (Jan. 1) J. T. Dickinson; (Apr. 2) J. C. Aldred; (Apr. 12) G. T. Cain.

Balloon Branch.

The folg. are granted comms. for durn. as P/Os. on probn.:—Cpls.: (May 14) J. A. Medcalf; (June 12) W. E. Truby, W. H. Woodroffe; (June 14) C. J. Robbins, L. G. Rose, A. R. Forbes; (June 16) E. A. J. Manktelow. L.A/C.: (June 14) F. J. Peacock, E. D. D. Potts; (June 16) F. W. Hatcher; (June 17) W. J. Monks. A/C.1: (June 14) G. H. M. Nichols.

The folg. P/Os. on probn. are confmd. in their appts. and promoted to war substve. rank of F/O.:—(Apr. 29) E. F. Pressland; (July 3) J. E. Allen-Jones, H. W. Newstead; (July 4) R. P. Moulsdale, E. H. B. Norton; (July 8) A. A. Salmon; (July 10) H. D. Buckle.

Administrative and Special Duties Branch.

The folg. are granted comms. for durn. as Sqn. Ldr.:—(June 9) T. F. Macrae. As Flt. Lt.:—(June 20, Sen. May 30, 1939) B. I. Carter (R.A.F. ret.). As P/Os. on probn.:—(Jan. 25) F. R. Cotgrove; (Mar. 4) J. H. Abbott; (Mar. 13) R. D. S. Parker, B. H. Williams. As Act. P/Os. on probn.:—(Feb 14) G. E. R. Lock; (May 23) H. J. Shaw Kennedy.

R. J. Jennings is granted a comm. for durn. as Act. P/O. on probn. (July 6, 1940) (Substd. for notifn. of June 27).

The folg. P/Os. on probn. are confmd. in their appts. and promoted to war substve. rank of F/O.:—(June 2) D. G. Martin; (June 17) G. B. Shields; (June 29) C. C. Johnston, J. A. S. Russell, D.F.C., A. G. Wallis.

P/O. on probn. C. H. Kippen is confmd. in his appt. (Feb. 10) and promoted to war substve. rank of F/O. (Apr. 16).

The folg. P/Os. on probn. are confmd. in their appts. (Mar. 8) and promoted to war substve. rank of F/O. (Apr. 22):—J. D. Coxwell, S. W. Webster.

F/O. C. W. W. Cooper relinquishes his commn. on account of ill health (July 7).

The comm. of F/O. on probn. J. E. Smith is terminated on cessation of duty (June 25).

Errata.

In notifn. of June 27 concerning Act. P/O on probn. F. W. Bailey *for* Feb. 17, 1940, *read* Feb. 17. 1941.

In notifn. of June 27 concerning P/O. on probn. R. J. Hiller, *for* Hiller *read* Miller.

Technical Branch.

The folg. are granted comms. for durn. as Act. P/Os. on probn.:—(May 5) G. R. Paddock; (May 10) R. J. C. Willey; (June 12) W. W. Abson, W. A. Brown, G. B. Buchan, L. H. Cody, R. W. Dennis, W. D. H. Gregson, H. R. Hoy, W. K. Napier, N. S. Sellers, R. C. Smith, F. E. Sperring, P. L. Waters.

The folg. P/Os. on probn. are confmd. in their appts. and promoted to war substve. rank of F/O.:—(May 27) J. Bamford; (May 31) T. S. Smith; (June 7) H. G. Henderson; (June 14) E. C. Brown; (June 21) I. W. Hancock, R. J. Lewis.

The folg. Act. P/Os. on probn. are graded as P/Os. on probn.:—(Mar. 30) A. McWatt Green; (May 9) B. D. F. Austen, N. R. Parry, G. A. G. Saywell.

The folg. F/Os. are granted war substve. rank of Flt. Lt.:—(Sept. 10, 1940) H. R. P. Patterson; (May 28) E. W. Braendle.

The folg. P/Os. are granted war substve. rank of F/O.:—(Dec. 10, 1940) F. R. Povey; (Jan. 1) J. T. Dickinson; (Apr. 2) J. C. Aldred; (Apr. 12) G. T. Cain.

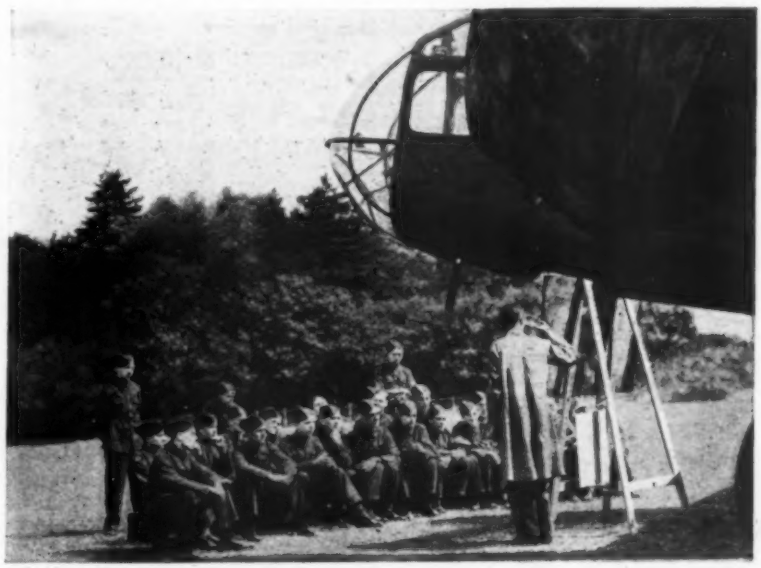
Balloon Branch.

The folg. are granted comms. for durn. as P/Os. on probn.:—Cpls.: (May 14) J. A. Medcalf; (June 12) W. E. Truby, W. H. Woodroffe; (June 14) C. J. Robbins, L. G. Rose, A. R. Forbes; (June 16) E. A. J. Manktelow. L.A/C.: (June 14) F. J. Peacock, E. D. D. Potts; (June 16) F. W. Hatcher; (June 17) W. J. Monks. A/C.1: (June 14) G. H. M. Nichols.

The folg. P/Os. on probn. are confmd. in their appts. and promoted to war substve. rank of F/O.:—(Apr. 29) E. F. Pressland; (July 3) J. E. Allen-Jones, H. W. Newstead; (July 4) R. P. Moulsdale, E. H. B. Norton; (July 8) A. A. Salmon; (July 10) H. D. Buckle.

Administrative and Special Duties Branch.

The folg. are granted comms. for durn. as Sqn. Ldr.:—(June 9) T. F. Macrae. As Flt. Lt.:—(June 20, Sen. May 30, 1939) B. I. Carter (R.A.F. ret.). As P/Os. on probn.:—(Jan. 25) F. R. Cotgrove; (Mar. 4) J. H. Abbott; (Mar. 13) R.



THE YOUNG IDEA: A.T.C. boys at their first camp receive open-air instruction in the shade of a Handley Page Hereford.

SERVICE AVIATION

Goody; (Apr. 7) I. Welby, M.C., D.F.C.; (Apr. 15) D. A. L. Macdonald; (May 7) W. N. P. Hill; (May 12) C. D. Blair, P. G. McGibbon; (May 16) M. A. R. Dawson; (May 20) D Dakin; (May 21) J. McLaren; (May 23) E. H. Freshfield, F. R Goodwin, W. E. Symonds; (May 24) K. J. D Syers; (June 13) W. G. Cheesman, C. M. A Baker, H. M. Bennett, G. E. D. Billam, F. Binns, E. N Bradley, H. J Bradsell, D. D. Brown, H. G. F. Buckton, J. Cairns, M.C., M. W. D'A Cleland, J. A. C Cobb, D. Conacher, C. E. Davies, B. A. de Pass, J. R. Duckworth-King, E. H Edwards, R. G. D Elliott, M. G. Evans, A Gaskell, P. Goodenay, J P. Greenwood, E. G Harding, A. P. Harewood-Westaway, R. Jessop, H. E. Kitley, E. A. Markham, W. Morrison, D Munro, J. O. Oslear, S. H. Ottley, J W. Pemberton, D. S. Piper, F. J. Porter, W. F. Ransom, A. B. Read, J. H. Sykes, W. D. Tennant, J. L Thomas, W. B. Thomas, E. R. Wetton, C. Whitworth; (June 23) P. G. Holt, W. Barlow. Cpls.: (May 12) J. W. Parker; (June 7) J. P. Date. As Act. P/Os. on probn.:—(June 6) E. S. Lewis; (June 8) C. R. Herschel; (June 9) G. A. Hornblower; (June 13) R. Rutherford, R. H. Walker. Flt. Sgts.: (June 9) H. W. Leach, W. H. Vicary, R. H. Lees; (June 20) A. F. H. Brown, H. Atkinson, G. Haigh. Sgts.: (June 9) J. T. Newington, B. Gridley, J. Kennedy, C. C. H. Clifford, R. Bishop, A. E. Boyd, H. Hammond, E. G. Powell, F. W. T. Sprules; (June 20) S. W. Bull, J. MacL. Teakles, J. W. Gray King, E. J. Parks, G. W. R Shaw, D. R. Masterman. Cpls.: (June 6) R. H. Lace; (June 9) J. T. Corthine, C. A. Trew, R. H. Millson, A. N. Clint, A. Dawbarn, R. G. Fisher, R. H. Squire, W. H. Chapman, S. W. H. Ingham, E. M. John, D. G. Brown, N. Ackary; (June 20) H. Mulford, C. J. Anderson, E. E. Barnett, A. E. Alexander, A. E. Tullberg. L.A/C.: (June 9) G. R. Miller, P. S. Howieson, F. de C. G. Morton, S. T. Edwards, C. A. Pickett. A/C.1: H. J. White, L. Ashdown, H. H. Tickler, C. N. Nightingale-Holloway, C. W. Bray; (June 20) F. J. Trotlope, A. R. Smallwood. A/C.2: (May 27) F. W. J Last; (May 28) L. G. Healy; (June 9) W. R Bennewith; (June 14) E. L. Peters; (June 20) A. V. Jones, C. W Gell, S. Bollom, T. A. Watson, A. D. Williams, R. J. Thom, A. N. Banks.

The folg. P/Os. on probn. are confmd. in their appts. and promoted to war substve. rank of F/O.:—(Jan. 9) E. T. Weddell; (Apr. 13) R. Wiginton; (May 6) O. M. Armstrong; (May 9) T. M. Goldon; (May 13) D. R. Martin; (May 18) A. S. Bremner, C. V. Knight; (May 25) J. W. Buckstone; (May 26) S. Kesley; (May 27) L. Wilson; (June 1) F. H. L. Campion; (June 7) B. V. S. Charlton; (June 10) E. S. Comberbach; (June 13) A. F Howgate; (June 14) R. E. Dingwall, J. H. G Ball; (June 15) L. L. N. Vinall; (June 17) D. B. Davies, T. H. Gould; (June 22) S. A. Bishop; (June 24) W. G. Long; (June 26) D. R. Lishman; (June 27) J. C. Wilson, H. Amcs, W. B. Benton; (June 28) A. L. Walton, R. Croft, H. G. R. Thomas; (June 29) H B Anning; (June 30) H. A. L. Weeks.

P/O. on probn. S. Crawford Marks is confmd. in his appt. (Mar 9) and promoted to war substve rank of F/O. (Apr. 20).

P/O. on probn. G. L. D. Cox is confmd. in his appt. (May 18) and promoted to war substve. rank of F/O. (June 26).

The folg. Act. P/Os. on probn. are graded as P/Os. on probn.:—(Apr. 11) J. Hopkins, T. R Jones, J. P. Swanson, W. J. Jarvis, T. S. F. Flannery; (Apr. 14) F. W. A. Cuningham; (Apr. 18) D. Bird; (Apr 20) J. McCreesh; (May 2) F Luxton; (May 16) F. N. Backhouse; (May 30) G. A. Booker, E. J. Kennedy, C. S. F. Hancock, B. G. Morgan, T. I. M. Ciulow, J. Lee, G. E. L. Hyams, D. J. Southwood; (May 31) K. G. Bell, S. Vaughan, H. Woodhouse; (June 6) R. Carter.

The folg. P/Os. are granted war substve rank of F/O.:—(Dec. 4, 1940) J. C. Williams; (Jan. 20) N. H. de V. Heathcote; (Feb. 20) S J Appleby; (Feb. 25) S. L. Jay; (Feb. 28) H. Sainsbury; (Mar. 1) L. A. Lloyd; (Mar. 5) W. A. G O'Brien; (Mar. 6) D. Cairns, M.B.E.; (Mar. 17) W. G. Melville; (May 1) S. T. Tipper; (May 11) H. B. Way; (May 18) P. O'B. Brunner, K. H. G Tilley; (May 28) H. H. R. Schleman.

The folg. P/Os. on probn. are transfd to General Duties Branch:—(Nov. 25, 1940) H. E. Baker; (Mar. 26) L. A. Miller; (Mar. 30) E. R. Varley.

The folg. are transfd. to Technical Branch:—Flt. Lt.: (Apr. 24, 1940) J. J. Y. Scarlett. F/Os.: (Apr. 24, 1940) M. F. Poulter; (Mar. 10) A. Foden. P/Os. on probn.: (Nov. 11, 1940) M. Bennett (since promoted); (July 17, 1940) R. W Fraser; (Aug. 28, 1940) G. W. E. M. Wuyts; (Sept. 17, 1940) T. H. Jackson; (Apr 24) I. Stewart; (May 19) N B. Birrell, E. E. Barber, A. D. Beddam Whetham, H. Brabrook, B. Cook, W. Darbyshire, W. J. Delaney, S. A. Khan, C. N Lees, R. A. Lolley, J. H. A. Muirhead, N. C. Millott, J. A. Owens, D J. Parsons, W. D. Wadsworth.

P/O. on probn. K. G. Beardwood relinquishes his commn. on account of ill-health (July 11).

P/O. G. R. Hookham resigns his commn. (June 25).

The folg. relinquish their hon. commns. on appt. to commns. for durn. in Administrative and Special Duties Branch (May 22):—Sqn. Ldr.: W. E Symonds. Flt. Lts.: E. H. Freshfield, F. R Goodwin.

Meteorological Branch.

P/O. on probn. G. H. Jones is confmd. in his appt. (Aug. 1, 1940) and promoted to war substve. rank of F/O. (Nov. 21, 1940). (Substd. for notifn. of Jan. 21).

Act. P/O. on probn. G. H. Jones is graded as P/O. on probn. (Nov 21, 1939). (Substd. for notifn. of Jan. 19).

Training Branch.

The folg. are granted commns. for durn. as Act P/Os. on probn.:—(Feb. 1) C. F. Armor, A. B Barnes, F. P. Brooks, T. St. J. Carnes, H. T Chamberlain, H. L. Cochrane, E. Cooper, J. B Dixon, H. Furber-Mason, R. V. C. Grace, E. J Hayward, G. H. Hodgson, E. Lowe, F. A. Sellers, C. J. Sharpe, W. J. Sparham, J. P Swift, J. R Taylor, R. E. Townsend, J. M. Wall, D. D Williams, J. Williams, H. Wright; (Feb. 9) P Robertson; (Feb. 10) R Johnson; (Feb. 12) W. G Blunt; (Feb. 14) A. Inglis, T. R. James; (Feb 17) H. M. Rogers; (Feb. 18) H. M. Dickson; (Feb. 19) A. E. C. Gleadle, A. R. Victor-Trott; (Feb. 25) H. C. Ferens, E. H. Harcourt Stenning; (Feb. 26) T. F. A. Ragg; (Feb. 27) J. H. Cathcart, R Hay, R. Siddall; (Mar. 1) L. T. Hyde; (Mar. 2) S. H. Holland; (Mar. 5) A. R. Hind, W. J. Scott, A Turberville, S Wormald; (Mar. 4) T. W. Jones; (Mar. 5) E. Jones, G. M. Sharp, W. S Stevenson, L G Tearle; (Mar. 6) J A. Edwards, J. Firton, D S. McIlhagger; (Mar. 7) G. R. M. Clarke, F. L. Hawley; (Mar. 8) A. J. Cleasby, E. W. Fletcher, D.F.C., E. F. Pearce; (Mar. 9) H. J. Baker, H. C. Stott, L. Wright; (Mar. 12) H. J. S. Dewes, R. H. Duck, E. E. Jones, C. E Lemin, L. C. Parslow; (Mar. 13) R. S. Machin; (Mar. 14) R. Ainscow, H. N. Bradbrooke, E. Snepherd; (Mar. 15) K. T. Badman, J. A. Chiles, W. J. Gabriel, L. Lewis, W. D. Redmore, N. A. Talbot; (Mar. 17) A. H. Battersby, A. L. Butterworth, R. Latham, J. Livesley, P. T. Messenger, S. H Pinchen; (Mar. 18) G. E. Harrison; G. E. Taylor; (Mar. 19) H. S Abraham, A. Pratt; (Mar. 20) J. A. Atkinson, H. Proudlove, F. T. Webb; (Mar. 21) G. H. Lloyd Jacob, E. E. Morgan, A. C. Renshaw; (Mar. 22) C. Bispham; (Mar. 24) A. R. Crosthwaite, P. Cunningham, E. W. Denham, J. H. Edge, J. Fallows, H. Hazeldine, W. Muirhead, R. Shillinglaw, R. M. Thorpe, J. H. Walker; (Mar. 25) A. G. Bewes, C. W. Hucks, W. J Eley, G. H. Newberry, H. Norris, P. Reed, E. Shelley; (Mar. 26) A. B. Douglas, H. Humphreys; (Mar. 27) H. W. Barrett, W. H. Bream, H. T. Davies, J. R. Griffith, G. C. Hardy, R. J. Machin, D. T. Roberts, O. L. Rogers, J. A Ward, S. C. A. Webb; (Mar. 28) R. H. Brewis, A. R. Davidson, R. Nelson, T. Wright, T. H Young; (Mar. 29) G. E. Austin, W. S. Browning, B. G. Lampard-Vachell; (Mar. 30) A. S. Ingham; (Mar. 31) C. L. Berry, J. W. J. Fay, S. A. Ford, E. J. Grubb, G. F. Johnson, F. H. Llewellyn, H W Sankey; (Apr. 1) T. E. Corlett, J. W. S. Crone, B. Cunliffe, L. Gavaghan, C. R. Major, A. A Nicol, E. M. Wright; (Apr. 2) J. Armstrong, L. Blewett, D. C. Miller, H. Potter; (Apr. 4) T. H. Fox, A. D. McDonald; (Apr. 5) C. Cuttler, R. E. Davis, E. H. Froud, D. V. Gilbert, L. S. Golding, E. G. Horden, A. W. Rawson; (Apr. 7) R. B. Bolton, T. E. Thompson; (Apr. 8) D. S. Cramb, A. J. Drury, L. James, J. P. Jones, J. Rees, A. E. Tyrrell, R. E. Williams; (Apr. 9) R. H. Bowyer Yin, R. Calder, W. Craig, D. Hall, S. Lemon, R. J. Lofthouse, R. Neish, J. F. Parry, J. Pattie, T. Philipson, A. C Rushworth; (Apr. 10) G. H. C. Collins, E. G. W. Fry, J. W. H. Petrie; (Apr. 11) A Harvey, T. Price, H. A. Stocks; (Apr. 12) E Bower, C. O. Cadman, A. G. D. Maunder; (Apr 15) E. M. Evans, F. Gelder, R. L. Hargreaves, G. W Hunnisett, T. R. Vause, J. Vose, C. E Woodward, (Apr. 16) W. F. Addison, W. Bean, H. Burrows, D. M. Galloway, T. Hamilton, F. Jones, B. Keaney, J. L. McAdam, J. Reid, W Rhind, W. H. Sayers, H. F. Taylor, A. Wragg; (Apr. 17) J. Sheldon; (Apr. 18) W Clowes, L. C. Creed, T. G. L. Harris, W A. V Hoskins, T. E. Jones, C. G. Kay, A. Lilley, J. Simms; (Apr. 19) F. B. Booth, B. L. V. Kay, L. Marston, J. Salisse; (Apr. 20) A. N. Ryles; (Apr. 21) O. L. Ash, W. L Burns, E. S. Carter, S. H. Curtis, S. H. Gillespie, H. Jones, S. A. Lawrence, J. F. Scott, W. K. Spicer, F. S. Williams; (Apr. 22) W. F. Blackman, A. L. Coulson, P. Hasclock, R. Parker, E. A. Williams; (Apr. 23) H. Bowman, E. J. Davies, E. Eglin, H I. Evans J. Evans, D. Hodgetts, F. W Humble, S. G. Lawrence, W. Price, J. Thomas, J. B. Whitehead; (Apr. 24) B R. Beasley, H. E Carrington, H. J. Clappen, C. Keightley; (Apr 25) G. Grantham, L. Powell, R. P. Vaughan; (Apr. 26) C. F. Johnson, L. R. H. Walker; (Apr 28) A. C. Baker, J. Bethell, W H. Beynon, R Briggs, R. Britton, L. Buchan, H. J. Callister, E. F. Cliff, J. G. Crewe, W. J. Cunnington, R Ellis, A. P. Graham, C V. Kay, E. Kaye, A. R Lamb, H. J Martin, K. S. McKay, J. J. Nott, G. H Pearce, W. A. Peplow, G R P. Peters, J. C Platt, J. Renwick, E. S. Semper, A. Sheffield, A. Shimeld, H. H. Sullivan, E Tomlinson, K. L. Wall, C. E. Whitaker; (Apr. 29) T. R Dutton, J. Haddon, D. H. Jones, H. W. Lodge, R D. Pritchard, K. W. Reed, W. H. Smith, A. C Turner; (Apr. 30) E. Bostock, D. Donald, A. Henshaw, W. J. May, A. D. Nash, B. O'Loghlin; (May 1) J. A. Cunningham, H. A. Elliott, C. D Graves, H. R. Gunner, F. C. Hobbs, J. A. W Jarvis, J. McHugh, R. R. Mounsdon, A. J. Smetham, A. Street, J. Stubbs, R. A. H. Sutcliffe, W. Thorpe; (May 2) H. Bracewell, F. W Carroll, E. C. Charlton, S. H. Cox, M. A. T Crosby, R. F. Cunningham, G. E. Davies, E. J Doherty, S H. Eades, D. F. Gover, W. T. Harrison, A. C. Jarvis, S. C. Lord, L. D. Martin, S Russell, R. E. Taylor, C. F. G. Viner, H. S Watts, H. Whitehead, M.M.; (May 3) F. G Fidler; (May 5) W. A. Boardman, C. H. W. Clarke, G. F Davies, G C. D. Lindsay, G. Napier, T. J. Nicholas; (May 6) F. Cooper, H. E. Fisher, J M. Fletcher, A. W. McClellan, L. Peacock, L Scourfield, E. C. Sidney; (May 7) W. Anderson, Scott, V. J H. Matterface, J. Quinn, A. T Simpkin, R. P. Vickers, W. G. White, D.C.M., M.M., R. W. Whiting; (May 8) E. T Carr, J Connor, W. J. Downie, D. R. Dukes, C. H Haydon, S. Herbert, C. Hulbert, D. G. Hunter; (May 9) W. L. Bennetto, W. G. T. Blois, O.B.E., H. V. R. Hill, C. Kenyon, M. M. Melinsky, L. H Mitchell, S. P. T. Wells, W. A. White; (May 10) J. T. Allardice, M.C., R. W Barlow, W. R Edwards, J. F. Lawrence, F. Thomas; (May 12) A. Beedie, J. M. Hay, F. Jones, W Lea, J. E Parkinson, R. S. Reid, A. G Taylor, M.B.E.; (May 13) C. Atkinson, G. A. Bennett, O. H. B. Dunn, J. R. Glover, B. G. Kedge, T. R. Richardson, A. C. Turner; (May 14) D Andrew, H. N. Barclay, T. S. M Butterworth, A. P. Coote, J. W. Gittins, J. R Roberts, F. Rollinson, J. H. Thompson, F. H. E. D Turner, J. White; (May 15) D. G. Evans; (May 17) J. D. C. Anthony; (May 19) W. Dixon, A Gunn, S. H. Smalley; (May 20) W. D. Broadbent, N. H. Fackrell, C. A. Hale, C. E. Leeson; (May 21) W. J. Fawkes, P. A. Gathergood, R. W West; (May 23) F. A. G. Dale, F. G. Davies, R. L Ghent, C. K. Hemery, A. E. R. Leavisa, J. M Watson; (May 24) F. Nicholls, A. H. D. A Smith; (May 27) A. Betts; (June 5) L. S. Price; (June 12) R. E. Charlton.

Errata.

In notifn. of May 9 concerning R. J. Moxon, *for* Moxon *read* Moxom.

In notifn of June 6 concerning L. H. Craswell, *for* Craswell *read* Craswell.

Equipment Branch.

The folg. are granted commns. for durn. as Act P/Os. on probn.:—(Apr. 14) F. R. G. Pearce; (June 6) C. W. Beesly, D. M. Bell, G. C. Carter, E. W. Fattorini, G. A. Howell, F. T. Johnson, L. A. Reid. Flt. Sgts.: (June 6) J. H. Reid, C Bastable. L.A/C.: R. H. Brown, E. T. East, K. B. Watts, R. A Browning; (June 20) R. B. Holden, J. Newland, K. R. Ash. A/C.2: (June 6) J. D. Gudgeon, G. Woods.

The folg. P/Os on probn are confmd. in their appts. (Apr. 2) and promoted to war substve. rank of F/O. (May 13):—J. P. Andrews, J. D Carmichael.

P/O. on probn. F. C. Darley is confmd. in his appt. and promoted to war substve. rank of F/O. (June 1).

The folg. Act. P/Os on probn. are graded as P/Os. on probn.:—(May 2) W. E. Gee; (May 30) F. J. Fowles, R. Godson, J. E. H. Grainger, J. Whitehouse.

Accountant Branch.

The folg. are granted commns. for durn. as Act. P/Os. on probn.:—(June 20) Sgt.: L. Crocker; Cpl.: L. T. Norton.

P/O. on probn. J. P. Cordery is confmd. in his appt. (Mar. 25) and granted war substve. rank of F/O. (Apr. 1).

Medical Branch.

The folg. F/Os. are promoted to war substve. rank of Flt. Lt.:—(June 1) P. D. B Spence, M.R.C.S., L.R.C.P.; (June 18) P. B. Atkinson, M.R.C.S., L.R.C.P.; (June 25) B J. Frankenberg, B.S., M.R.C.S., L.R.C.P.

Miss M. M. Dobson, M.D., B.S., M.R.C.S., L.R.C.P., is promoted to relative rank of Flt. Lt. (Apr. 23).

W.A.A.F. TRADE. An aircraftwoman repairing a Williamson camera at the School of Instrument Repairers.

Auxiliary Air Force

General Duties Branch.

F/O. W. E. Ballard is transfd. to Technical Branch (May 19).

P/O. P. C. Weeks relinquishes his comms. on account of ill-health (July 8).

Balloon Branch.

F/O. I. R. Taylor is transfd. to General Duties Branch (Nov. 1).

Administrative and Special Duties Branch.

Flt. Lt. L. E. A Healy is transfd. to Technical Branch (Apr. 24, 1940).

Women's Auxiliary Air Force

The folg. relinquish their appts.:—(June 13) F/O. M. D. Henderson; (June 15) Assist. S/O. D. C. Trousdale.

F/O. S. J. Burnett (disembodied May 1, 1940) is lent to the Women's Auxiliary Australian Air Force (May 27).

1941.